THE RAILWAY GAZETTE
A Journal of Management, Engineering and Operation
INCORPORATING
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DIESEL RAILWAY TRACTION SUPPLEMENT

The October issue of THE RAILWAY GAZETTE *Supplement, illustrating and describing developments in Diesel Railway Traction, is now ready, price* 1*s.*

NOTICE TO SUBSCRIBERS

Consequent on the paper rationing, new subscribers cannot be accepted until further notice. Any applications will be put on a waiting list and will be dealt with in rotation in replacement of subscribers who do not renew their subscriptions

GOODS FOR EXPORT

The fact that goods made of raw materials in short supply owing to war conditions are advertised in this paper should not be taken as indicating that they are available for export

POSTING "THE RAILWAY GAZETTE" OVERSEAS

We would remind our readers that there are many overseas countries to which it is not permissible for private individuals to send printed journals and newspapers. THE RAILWAY GAZETTE *possesses the necessary permit and facilities for such dispatch.*

We would emphasise that copies addressed to places in Great Britain should not be re-directed to places overseas

TO CALLERS AND TELEPHONERS

Until further notice our office hours are:
Mondays to Fridays 9.30 *a.m. till* 5.30 *p.m.*
The office is closed on Saturdays

ANSWERS TO ENQUIRIES

By reason of staff shortage due to enlistment, we regret that it is no longer possible for us to answer enquiries involving research, or to supply dates when articles appeared in back numbers, either by telephone or by letter

ERRORS, PAPER, AND PRINTING

Owing to shortage of staff and altered printing arrangements due to the war, and less time available for proof reading, we ask our readers' indulgence for typographical and other errors they may observe from time to time, also for poorer paper and printing compared with pre-war standards

The Railway Financial Agreement

IN the House of Commons on September 21, Sir Waldron Smithers asked whether the Government's agreement with the railways was to stand until we were no longer at war with anybody or whether it stood for a year only after we had beaten Germany. Mr. Noel-Baker in reply pointed out that the agreement provided that control should be continued for a minimum period of one year after the cessation of hostilities, and added that it would be premature to seek to determine its exact duration. Meantime, it may be noted that controversy continues as to the equity of the financial agreement between the Government and the railways, notably perhaps in the correspondence columns of the financial press. Sir Waldron Smithers represents Chislehurst in the House of Commons, but he is also a well-known figure in the City, and a member of the London Stock Exchange, where interest in the duration of the agreement is naturally keen. The answer evoked by his question in the House contains no suggestion that the Government contemplates any revision of the agreement, and will provide little satisfaction for those who have been so energetic in the adumbration of the case for a better bargain for railway stockholders.

"Last In, Last Out"

The undesirability of the policy enunciated by the Minister of Labour & National Service in relation to demobilisation—Mr. Bevin called it "first in, first out," but from industry's point of view it might be more appropriately described as "last in, last out," so far as it affects their key workers—was the subject of an editorial note in our last week's issue. *The Financial News* says that Mr. Bevin's announcement suggests that the Government has no clear idea what the problems are of the post-war transition period, much less of the detailed measures necessary to meet them, and that demobilisation will be according to a principle which will hinder rather than assist the speedy starting up of peacetime industry. So far the authorities have announced no plan of definite post-war policy; the export trades will presumably have priority, both for materials and manpower, first to help to meet urgent reconstruction needs overseas, and later to achieve a 50 per cent. expansion in exports over pre-war, which has been declared indispensable. There seems to be little point in giving industry instances such as this of what is expected of it, if, at the same time, it is informed that it must forego the use of its skilled personnel and if no clear-cut plan is available for its general direction.

Public Ownership and Control of Railways

In a recent article in *The Daily Telegraph*, Mr. J. C. Johnstone put forward some reasons against a too-ready adoption of public ownership and control of British railways. He pointed out that no major criticisms reflecting on the general efficiency of the lines have ever been brought before the Railway Rates Tribunal, and that despite all the struggles of the companies in the face of the uncertain policy of Parliament, the Minister of Transport before the war informed the House of Commons that "any Minister of Transport must speedily be impressed by the vital character of the railways as the transport core of the country, and the high degree of efficiency and enterprise with which the railways are operated." Mr. Johnstone also pointed out that the splendid wartime performance of the railways had nothing to do with their wartime control by the Government, which was not responsible for the physical efficiency of the railways; it took them as it found them, as it has also taken the managements it found. In Mr. Johnstone's view, when the history of Government control in wartime comes to be written, there will be evidence that both State and public might have been better served without it.

Machine Tools After the War

On more than one occasion attention has been drawn in our columns to the need for care in the disposal of machine tools after the war. *The Financial Times* has pointed out recently that yields in the neighbourhood of 8 per cent. are offered by shares of machine tool manufacturing companies, at a time when the most promising "recovery" investments are returning 3 per cent. or less, and that this indicates the wariness with which the post-war prospects of the industry are viewed. Investors remember how the machine tool trade in this country was affected after 1918 by the uncontrolled flood of second-hand apparatus released from munition-making and similar operations. Current British production of machine tools is probably ten times as great as at any time during the last war, and similar expansion is going on in many parts of the world. Production in the United States, for example, rose from the value of $200,000,000 in 1939 to $1,322,000,000 last

year. The problem of the post-war surplus obviously will be grave, and while it is being overcome *The Financial Times* suggests that the machine tool trade should be subsidised, if necessary, either directly or by means of income tax concessions, for it is an essential part of our export industries as well as a vital unit of armaments production.

Overseas Railway Traffics

There has recently been some improvement in Argentine railway stocks, partly because of the impending repatriation of Argentine sterling loans, and partly in sympathy with the further debenture interest payments by the Buenos Ayres & Pacific and the Argentine Great Western. In the 10th, 11th, and 12th weeks of the financial year small increases have been shown in the traffics of the Buenos Ayres & Pacific and the Buenos Ayres Western, which previously had been recording decreases, but in the last two weeks there have been slight falls in Argentine North Eastern and Entre Rios receipts. The Central Uruguay in 11 weeks of the financial year has secured aggregate earnings of £309,194, an improvement of £95,563. Brazilian railway takings continue to advance. On the San Paulo up to September 12 aggregate receipts, at £1,556,166, show an increase of £208,833. Great Western of Brazil at September 18 had aggregate traffics of £577,100, an improvement of £201,100, and the corresponding figures for the Leopoldina were £1,271,902 and £143,862.

	No. of week	Weekly traffics £	Inc. or decrease £	Aggregate traffic £	Inc. or decrease £
Buenos Ayres & Pacific*	12th	98,400	+ 5,400	952,620	−39,060
Buenos Ayres Great Southern*	12th	144,300	+ 1,380	1,611,540	+131,220
Buenos Ayres Western*	12th	53,100	+ 1,560	549,780	−22,200
Central Argentine*	12th	139,461	+ 9,618	1,471,554	+30,915
Canadian Pacific	37th	1,198,400	+128,400	40,301,800	+5,338,200

* Pesos converted at 16⅔ to £

The United of Havana up to date has secured £567,591 of traffic earnings, which are £116,109 higher than those for the corresponding period a year ago.

Anglo-Scottish Railway Assessments

The average net receipts for the years 1935 to 1939 (which form the basis of the *cumulo* valuations of the two Anglo-Scottish railway companies for the quinquennial periods commencing in England and Wales at April, 1941, and in Scotland at Whitsunday, 1943) have been certified, as mentioned in the annual report of the Anglo-Scottish Railways Assessment Authority for the year to March 31, 1943. The amounts certified were £12,563,755 for the L.M.S.R., an increase of £1,629,602, as compared with the figures certified for the quinquennial period 1930-34, and £8,110,222 for the L.N.E.R., a decrease of £190,575. Apportionments of net receipts for the L.M.S.R. are made o: £11,564,679 to England, an increase of £1,364,402, and of £999,076 to Scotland, an increase of £265,200; whereas the L.N.E.R. apportionment of £7,690,895 to England is £58,948 lower, and its £419,327 figure for Scotland has fallen by £131,627. Gross receipts as between the two countries were ascertained by tests carried out in 1937, and an actual division on a geographical basis of expenditures under Abstracts A, C, and D could be made. Maintenance of rolling stock (Abstract B) presented more difficulty because, while locomotives and, to some extent, coaching vehicles were allocated geographically, no such allocation existed with regard to merchandise and mineral wagons which were used throughout the systems. It was, however, found possible to arrive at formulæ which would give a fair apportionment.

A Record Parliament?

In normal circumstances the statutory limit of the duration of any Parliament is five years, and the present Parliament, which was elected on November 14, 1935, should have been dissolved after the first year of war. In the special circumstances, an Act was passed on November 11, 1941, extending the term of the existing Parliament from five to seven years, and steps have subsequently been taken to prolong it further, so as to avoid the disturbance of a general election in wartime. This Parliament has now lasted longer than the Parliament of the last war, and longer than any Parliament, except the Elizabethan Parliament, 1572-1583; the Long Parliament, 1640-1653; and the Penisonary Parliament, 1661-1679. In a letter to *The Times* recently, Captain Richard Pilkington, M.P., drew attention to this and suggested that the present Parliament had established a good claim to be known in history as the Record Parliament. He pointed out that so far during its lifetime there have been three Kings and three Prime Ministers; a royal jubilee and a royal abdication; the resignation of a First Lord and of a Foreign Secretary; the golden wedding and the death of a Speaker; the coming of World War II; and the destruction by enemy action of the Chamber in which it was accustomed to sit. To this we may add that there can be few, if any, previous Parliaments that have had so many transport problems brought to their attention.

Praise for the Ulster Transport Scheme

Tribute to the working of the Northern Ireland Road Transport Board was paid recently by Mr. J. Corrin, National Secretary of the Commercial Road Transport Group, at the biennial delegate conference of the Amalgamated Transport & General Workers' Union in Edinburgh. He was speaking on the subject of a resolution calling for the public ownership of the various forms of internal transport, namely, road, rail, and inland waterway, and said that quite effective public control was already operating in Northern Ireland, where the arrangements might be taken as an example in other parts of the British Isles. The Northern Ireland Road Transport Board has now been working for 8 years, as it began its operating existence on October 1, 1935. In its early years it was handicapped in various ways, but since the outbreak of war improved traffics have resulted in a satisfactory financial position. Mr. Corrin said that the board was making a success of its job and that today its contribution to the war effort was greater than that of any other industry in Northern Ireland. We assume that he did not mean greater than that of the railways in Ulster, as such a statement would be very obviously contrary to fact.

L.N.E.R. New Locomotive Depot

In our issue of June 25, we gave some details of the wet ash pits which had been installed at the modern locomotive depot which had been opened recently by the L.N.E.R. in the North Midlands area. On page 333 of this issue we are able to give a description of the depot which has replaced an establishment brought into use nearly 100 years ago. The shed at the new depot has connections to the L.N.E.R. main line at both ends, one of which is served by a flyover for inward engines so as to obviate delays to train movements on the running lines. The wet ash pits are an interesting feature of the new depot, and details and illustrations of their construction are given in the article. Because of the war it has not been possible to instal new machine tools, as was orginally intended, at the depot, but the machines which have been transferred from the old shops have been overhauled and equipped with independent electric drive. For the staff of 750, which includes 50 women, commodious messrooms with electric cooking and heating equipment have been provided, and there is an enginemen's dormitory near the shed equipped for sleeping 50 men.

Timetables and the War

The appearance of the winter timetables, operative from October 4, is a reminder of the remarkable way in which British passenger train services have remained in large measure unchanged through four years of the present war. During the 1914-1919 war there was a progressive deterioration in long distance travel; from the beginning of 1917 onwards overall journey times slumped severely. The permanence of the train services introduced in the winter of 1939-1940 has been a tribute to the foresight of railway managements. One or two important trains have disappeared; there has been a slowing of certain services, though the percentage increase in overall journey times has been negligible; a fair number of restaurant car services is still available, on the L.M.S.R. and G.W.R. in particular; and in the last year there has been a distinct increase in the number of advertised duplicate trains, some, like the Scottish sleeping car trains making non-stop runs between Euston and Carlisle, of considerable note. Punctuality, on the whole, tends to improve, and is in all the circumstances praiseworthy indeed. In this connection it is, perhaps, the most astonishing that it is still possible freely to permit maximum speeds up to 75 m.p.h.; and the liberty thus given to drivers to run at considerably higher speeds than their schedules demand has greatly assisted the recovery of lost time.

C.P.R. Participation in the War Effort

Mr. W. M. Neal, Senior Vice-President of the C.P.R., and Mr. B. W. Roberts, General Purchasing Agent of the C.P.R., have now returned to Montreal after their recent visit to Great Britain, during which, in three weeks, they toured some thousands of miles, and had many opportunities of seeing British transport under war conditions. While in this country they visited railway operating companies in the Canadian army which are officered by former employees of the C.P.R. and which contain many of the railway's personnel. In all, the number of C.P.R. employees now serving with the Armed Forces is little short of 18,000, and many more have been seconded from their railway work for war work of various kinds, both in the

Dominion and elsewhere. As we recorded in our September 17 issue, some eighteen months ago the Canadian Pacific Railway placed the whole of its purchasing organisation gratuitously at the disposal of the Navy, Army, & Air Force Institutes. Since then the purchasing organisation has shipped goods valued at some £8,000,000, on behalf of N.A.A.F.I., and has greatly facilitated the work of obtaining canteen supplies for troops.

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Enginemen's Comfort

In the earliest days of steam locomotion, when the locomotive was considered as no more than a development of the stage-coach, any idea of shelter for the crew was no more thought necessary than it was for a stage-coach driver. Many years, indeed, elapsed before it dawned upon locomotive designers that mounting speeds and longer hours of locomotive manning were beginning to impose considerable strains on engine-crews. The first scanty protection was that of the weatherboard; then came the first primitive attempts at roofing. In North America, from almost the earliest days, extreme winter temperatures made more adequate shelter imperative, and large cabs, with side windows and front doors giving direct access to the running-plate, became standard. The first British railway to introduce the side-window type of cab as standard was also one that had to contend with bleak winter conditions—the North Eastern Railway—and another constituent of the present L.N.E.R. which took a leading part in endeavouring to increase the comfort of enginemen was the Great Eastern, beginning with the commodious cabs fitted to the first "Claud Hamilton" 4-4-0 in 1900. Cab seats, also a standard fitting in the U.S.A., are still more or less rare in Great Britain, but their provision is increasing.

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Oil-Burning Locomotives

The recent deliveries of very large 4-8-8-2 "back-to-front" Mallet engines to the Southern Pacific Railroad, recorded in *The Railway Gazette* for August 20, direct attention again to some of the features characterising the working of oil-burning steam locomotives. Apart from the elimination of smoke and cinders, one of the principal reasons leading the Southern Pacific years ago to introduce oil-burning locomotives on sections of line with numerous tunnels, a feature of oil-fired locomotive boiler operation is that the efficiency, though not always extremely high, shows little falling off as the firing rate increases, as there is no rapidly-rising unburnt fuel loss; and high relative outputs can be obtained with moderate draughts and back pressures. We say "relative" outputs because certain tests and observations have shown that very high firing rates cannot be maintained, and that, considering peak values, it is doubtful whether in large boilers a higher gross evaporation could be produced by oil fuel than by coal. For example, in certain boilers of similar size it does not seem practicable to fire more than 150 million b.t.u. per hr. with oil fuel, contrasted with 180 milion b.t.u. per hr. or more with coal, and this difference is, if anything, greater than the difference in efficiency, though with differently-proportioned boilers the comparative drop in efficiency might be much greater. Per cu. ft. of firebox volume, it seems practicable to fire up to about 9/10 lb. of oil per hr., whereas values three to four times greater can be attained when firing coal.

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Freeing Locomotive Exhaust

The principle of free locomotive exhaust, first introduced into this country on a widespread scale by Churchward of the Great Western Railway, and later developed by the French locomotive engineer Chapelon and others, now appears to be taking firm root in Great Britain. It is on the Southern Railway that the most extensive application has been seen to date of the modern development of this principle. The work of the "Lord Nelson" 4-6-0s has been completely transformed by various front-end modifications, but particularly the Lemaître multiple-jet exhaust; the ten "Merchant Navy" Pacifics are similarly equipped and all the "Q1" 0-6-0s; also twenty of the 4-4-0 "Schools" class and six of the "King Arthur" 4-6-0s now have the Lemaître exhaust, and their number would be greater still, no doubt, but for current difficulties in obtaining materials. On the L.M.S.R. the double blast-pipe and double chimney is finding favour; both are now installed on 17 of the Pacifics, on the two "5XP" 4-6-0s that have been fitted with 250 lb. boilers and transferred to class "6," as well as on two other "5XP" engines; and the "Royal Scot" 4-6-0s now in course of reboilering with taper boilers are also receiving double chimneys. On the London & North Eastern, until now, the double chimney engines have not been increased beyond the original twelve so fitted by the late Sir Nigel Gresley—five Pacifics, including the record-breaking *Mallard* of 126 m.p.h. fame, 4-6-4 No. 10000, and the six 2-8-2s of the "Cock o' the North" class—but the performances of these engines have been so much in a class apart that further equipment of the Pacifics with double chimneys may well be expected when conditions permit.

Railways and Research

SIR HAROLD HARTLEY, F.R.S., Vice-President of the London Midland & Scottish Railway Company, believes that industrial research is going to be the vital factor in determining the prosperity of this country after the war. In a pamphlet entitled "Are you Research-Minded?"* Sir Harold urges that only research can refashion existing industries effectively and create new ones. He feels that American industrialists are far ahead of our own manufacturers in using science as a means of expanding trade and thinks that the time may come when research expenditure will be regarded as an index of a firm's prospects. Sir Harold would like every firm to have at least one member of its staff with a scientific training. He also presses for liberal support of a Research Association for each separate trade. There are 24 such bodies already in existence, linked with the Department of Scientific & Industrial Research which conducts the National Physical Laboratory at Teddington and a number of research stations concerned with fuel, forest products, water pollution, road construction, and other subjects of interest to the public and Government departments.

There will be general agreement with Sir Harold Hartley's plea that, when the war ends, the utmost use should be made of scientific inquiry in tackling peacetime problems. In the case of the railway companies he may almost be said to be preaching to the converted. The companies subscribe freely to a number of research associations and their technical officers make a point of keeping in touch with scientific inquiries which are proceeding either at home or abroad. The National Physical Laboratory, for instance, has been consulted freely about wind resistance and "streamlining." Again, the L.M.S.R. and L.N.E.R., after reviewing the lessons learned from locomotive-testing plants in France and America, decided to erect a joint installation just before war broke out. Arrangements had also been made for providing new dynamometer car equipment, but both schemes are necessarily in abeyance. Experiments with different types of permanent way have been pursued quietly in recent years and at least two of the main-line companies have appointed an Assistant Civil Engineer at headquarters for research and development work. In signalling, noteworthy progress has been made and new devices are frequently being tried. Electrical engineering aways affords a specially rich field for experiment, and a marked advance may be expected in the application of electric power for many purposes and also in traction principles when the companies are free to carry out schemes which have been shelved for the period of the war. It should be added that the L.P.T.B. constantly displays remarkable enterprise in studying the distinctive queries which arise over the construction, operating, and maintenance of underground railways. Much thought, for example, has been given to the abatement of noise and to ventilation, while cars on the Underground have been improved out of all knowledge in the last twenty years as the outcome of a long chain of experiments.

But research on the railways is not confined to the technical departments. A development section in a traffic or accounting office is no longer a novelty. Much of its work may not consist of fundamental research, but it will frequently involve the examination of different methods and careful estimating of the results of various theories. Studies of this kind have led to the extensive use of mechanical appliances in railway offices. Accountants, registrars, passenger and goods managers, and secretaries of railway banks have vied with one another in mechanising their methods of working. A great deal of time and labour has been saved by the changeover in system. Records are kept closely up to date and "red-hot" statistics are readily available.

Turning to the realm of economic research, nearly twenty years have passed since the main-line railways and the L.P.T.B. established the Railway Research Service. Under the control of a trained economist, the service watches and reports on transport developments everywhere. It has widespread contacts with railways in the United States, in Canada, and other British Dominions, and in the Argentine. During the war its communications with European countries have been violently interrupted, but the unique resources of the service have been turned to good account by its Secretary, Mr. C. E. R. Sherrington, M.C., M.A., and his expert staff.

Many readers will remember that the late Lord Stamp took "Scientific Research in Transport" as the subject of his presidential address to the Institute of Transport in October, 1929. Since that occasion his appeal for the scientific investiga-

* "Are You Research Minded? Industrial Research. What it means to British Industry." By Sir Harold Hartley, F.R.S. Copies obtainable from the Federation of British Industries, 21, Tothill Street, Westminster, S.W.1

tion of transport matters has not been neglected on our railways, but we hope that Sir Harold Hartley's pamphlet will be widely read and that it will give a fresh stimulus to the habit of thinking out questions in a thoroughly systematic manner.

A National Transport Programme

THE series of editorial articles* which was recently published in *The Railway Gazette* dealing with the future of transport, has been reprinted in pamphlet form, and Sir James Milne, Chairman of the General Managers' Conference, has contributed a foreword. He points out that transport will inevitably figure prominently in the spate of matters that will come under review in the post-war era, and although the railway companies are Statutory undertakings, subject to a considerable measure of control by Parliament, it has been suggested that State management would produce greater efficiency—a claim difficult to substantiate when records of State-owned railways are examined. Pointing out that it is generally recognised that the railways are indispensable, and that any proposals for the reorganisation of transport should be aimed solely at securing the most efficient and economical use of all forms of transport in meeting the requirements of the public, Sir James Milne states that in no responsible quarter has the foresight and efficiency demonstrated by the railways, as now owned and managed by private enterprise, been challenged. The achievements of the railways during the present war, for reasons of national security, have necessarily had to be veiled, and their success in meeting the unprecedented demands which have been made on their resources, has not yet received the full recognition due to them, but the public tributes already paid by the responsible Ministers of the Crown indicate the great measure of satisfaction which has attended the efforts of the railways.

It is generally recognised that there must be post-war changes, but attention is drawn to the fact that it would be unfortunate if any changes were to be made which would result in less efficiency in the administration and operation of the railways, as in that event the whole community inevitably would suffer. In May, 1939, it was announced in Parliament that the Government had approved, in principle, the recommendations of the Transport Advisory Council for a relaxation of the Statutory regulations governing the railways, and so forth, and intended to introduce appropriate legislation as soon as possible in the next session. The advent of the war made it impossible to implement this undertaking, but the need remains, and it is to be hoped that the decision of the Government will be implemented at the earliest possible date.

Among other directions in which improvements can be made, Sir James Milne instances co-ordinating and improving transport facilities as a whole in the interests of industrial and economic efficiency, and he welcomes the re-publication, in booklet form, of the recent series of articles in *The Railway Gazette*, because "it has adumbrated a number of constructive long-term proposals." He points out that although it is unlikely that there will be unanimity of opinion on them, they will serve the purpose of stimulating discussion on what will be one of the most prominent of the post-war problems and on this ground alone the suggestions are worthy of the most careful consideration.

Kenya & Uganda Railways & Harbours

AS shown by the report for 1942 by Mr. R. E. Robins, the General Manager, the administration of the combined services of railways, lake steamers, road transport, and harbours resulted in a surplus over all expenditure and charges amounting to £893,620, giving a return of 7·6 per cent. on the total capital expenditure of £23,283,729. On £14,131,681, the interest-bearing proportion of this total, the return was 12·5 per cent.

There were further increases in goods traffic, both in tonnage and ton-miles, with a slight fall in the average haul. Wagon-miles were greater by 8 per cent. than the record figure of 1941, and wagon-journeys increased by over 9 per cent., clearly showing the greater degree of mobility achieved. More empty wagon haulage, however, was inevitable. Sometimes empty wagons had to be moved from a point where low priority traffic was already available to a point where higher priority traffic was expected, and more, but lighter, trains had to be run. The coal situation remained precarious during the year, and made necessary to an increasing extent the use of smaller wood-burning locomotives which, with their low hauling capacity, involved the running of more trains—a factor which more than anything else affected operating results. The measure of the increased use of these smaller engines is apparent in the engine mileage figures which show that while there was an increase in train mileage generally of 16 per cent., the increase in Garratt mileage was only 5½ per cent. and the increase in the smaller "E.B.3" class locomotive was 11½ per cent. As to permanent way, the volume of traffic, which was again greatly in excess of the normal, and the continued necessity for diverting a large percentage of departmental engines and rolling stock to traffic and military uses, affected not only the standard of maintenance of earth ballasted track, but also increased the rate of rail and sleeper wear. Some 31,000 sleepers were re-conditioned during the year. The accompanying table relates to all except harbour operations:—

	1941		1942
Railway miles open	1,625		1,625
Passengers	1,649,476		2,339,881
Public goods, tons	1,706,416		1,808,624
Revenue train-miles	2,974,753		3,367,934
Public freight ton-miles	500,072,146		508,835,419
Average haul, miles	285		277
Operating ratio, per cent. ...	47·88		53·39
	£		£
Passenger receipts	462,214		609,227
Public goods receipts	2,674,280		2,652,308
Gross earnings	3,330,428		3,478,661
Ordinary working expenditure...	1,594,591		1,857,156
Renewals funds	370,381		373,405
Miscellaneous transactions (net)	Cr. 143,870	Cr.	103,338
Net revenue	1,509,326		1,378,315
Loan charges, etc.	643,876		643,840
Surplus	865,450		734,475

Passenger journeys and revenue in all three classes showed substantial advances, but the greatly increased traffic of 1942 was carried with the meagre pre-war facilities and at a cost of still greater overcrowding than was in evidence in 1941. In addition, covered goods vehicles were used to a greater degree for the carriage of third class passengers and African troops. The total tonnage of public and military traffic which passed over the railway system in 1942 was greater by 6 per cent. than in the previous year. The strain of this increased traffic was felt at all points. Rates and charges continued to be maintained at pre-war levels despite heavily increased expenditure.

Locomotive Valve Gears

LOCOMOTIVE history now goes back over more than a century and a half; in this time a vast amount of thought has been devoted to perfecting the means of steam distribution, but the process of improvement still goes on. To recapitulate all that has been accomplished since Murdoch introduced the long D slide valve in 1784 was the brave endeavour of Mr. T. H. Shields, M.I.Looco.E., who, on Thursday, September 23, read a paper entitled "The Evolution of Locomotive Valve Gears" at a general meeting of the Institution of Locomotive Engineers held in London. In this paper it was necessary to describe roughly 100 different types of gear for slide-valve operation alone; in addition, poppet-valve gears had to be covered. The paper was fittingly described in the subsequent discussion as "encyclopædic" and a "monumental effort"; it is likely to remain the chief work of reference on the subject for some time to come.

Obviously it is out of the question to summarise or make comment here on a treatise that relies greatly on illustration for its interest and value. The author did not criticise the gears he described. Consequently his paper provided little material for discussion. However, the mere mention of some types of valve gear to locomotive engineers has the effect of the proverbial red rag on the bull so that, in fact, valve gears were discussed if Mr. Shield's paper was not. Advocates of poppet-valve mechanisms pointed out that the best results could be obtained only by separating exhaust from inlet events but, on the other hand, Mr. Holcroft pointed out that the gears for actuating slide and piston valves gave a motion that might be appreciably different from simple harmonic motion; the presence of harmonics higher than the fundamental might improve or make worse the distribution. Though he did not say as much, one was left to infer that, even with the slide or piston valve, a measure of alteration in the phasing of inlet relative to exhaust events could be secured with link motions that introduced higher

* "The Future of Transport," June 18; "The Problem of the Peaks," July 9; "Transport and its Track," July 23; "Transport and Full Employment," August 20; "Transport and Catering Policy," August 27; "Post-War Transport: A Plan to Secure Economy and Efficiency," September 3, reprinted as a pamphlet, "A National Transport Programme," price 1s., *The Railway Gazette*, 33, Tothill Street, London, S.W.1

harmonics. He expressed his well known preference for the Stephenson gear, stating once again that, other things being equal, an engine with this gear would show a greater power output than one with the Walschaerts gear. On the other hand, Mr. Bulleid had compared the valve events in the Walschaerts-equipped Ministry of Supply "austerity" engine with those of his own Stephenson-equipped "Q" engine, and had come to the conclusion that there was no significant difference. Incidentally, his new totally-enclosed chain-driven gear, as fitted to the "Merchant Navy" engines, was described in the paper. This may be regarded as kinematically the equivalent of the Walschaerts gear.

Mention was made several times of the Baker gear for which great claims were made as far back as 1911; claims that might yet be seen to have some foundation if an attempt were made to carry out a harmonic analysis. One speaker, repeating the opinion of an American engineer, said that the Baker gear was now on the decline in the United States; in that it was considered more fit for moderate-speed freight work than high-speed duty. This opinion seems hard to reconcile with facts, however, as many new express engines have the Baker gear. Any form of eccentric gear was stated to be impracticable in America, by reason of the excessive peripheral speed of the very large eccentrics that would have to be used.

Several speakers spoke very highly of the Cossart gear; out of 30 Garratt-type engines that had been running for seven years with this gear in Algeria, only two were found to be in the shops on the occasion of a chance visit to that country; the others had given an impression of great vitality.

Glories of the Past

RAILWAY enthusiasts have always taken pleasure in looking backwards. Once the juvenile interest in engines of any kind is outgrown, a special affection for those of pre-grouping days used to take its place before the war, even though to many of their admirers the exploits of the older types in their prime were known only by tradition and the study of back numbers of the railway press. When main-line electrification came—a more serious menace to the older steam locomotives than the process of standardisation—there arose an ardent devotion to the surviving steam classes of the first system to be seriously affected in this way. Photographers lay in wait with burning eyes and uplifted hearts for the few trains that still ran to Brighton and Eastbourne behind a Billington "B4" or sometimes a Marsh Atlantic, even though it was only on the leisurely journey by way of Oxted and Uckfield that they could still be seen. There was rejoicing among railway devotees when it became known that the route from London to Hastings *via* Tonbridge was to remain steam-worked. Few regrets were heard in the same circles when an investigation into the prospects of electrifying the Great Western main line through Devon and Cornwall led to the decision not to undertake the work. In both instances the retention of steam meant a reprieve for engines whose names, and whose designers' names as well, were always spoken and heard with affection. It was not only the absence of drama in the appearance of the electric locomotive or (worse still) the multiple-unit train, but its monotonous uniformity that chilled the heart of the railway enthusiast.

We remember a journey to Scotland before the war, and the pride with which the foreman at Inverness produced from his shed a "Jones Goods" for us to photograph after we had remarked that a casual glance at the admirable but (we felt) too universal "Black Staniers" in the yard might lead us to suppose we were still at Kentish Town. Later, in Glasgow, we penetrated to a remote siding at St. Rollox to do homage to a Highland "Loch," and we confess that we felt more kindly disposed to the L.N.E.R. than to the L.M.S.R. when we discovered that at Kittybrewster Great North of Scotland engines still outnumbered the odd Great Eastern 4-6-0 or Great Central 2-8-0 that had penetrated thus far to remind us of grouping.

It was not only variety of locomotives that appealed to the railway enthusiast. The characteristic rolling stock of the various companies made journeys over their systems distinctive experiences. Many travellers with no particular railway interest still speak admiringly of the comfort of Midland coaches. Even the relative discomfort of the vehicles of certain companies that need not be detailed is today remembered with something near affection. Every railway, small as it might be, created and maintained its personality with colour, style, and slogan. Even the Stratford-on-Avon & Midland Junction, beginning and ending nowhere in particular from the point of view of the average traveller, called itself "The Shakespeare Route," as one may still be reminded by a war-memorial-*cum*-poster preserved at Ettington Station, in which sketches of Shakespeare's birthplace, Ann Hathaway's cottage, and Warwick Castle form a frame for a roll of honour of the company's servants who fell in the war of 1914-19.

After the years of grouping, during which surviving reminders in any form of the practice of the companies before amalgamation were particularly cherished by enthusiasts, there came the present war. At first sight it might seem that the enforced retention of older locomotive types and the interchange of engines between group and group according to individual needs would make the present period of special interest to the enthusiast. It is easy to imagine the excitement and the correspondence that would have been evoked before the war by a Stirling 4-4-0 of the South Eastern running into Peterborough North, L.N.E.R., on a train of L.M.S.R. coaches from Leicester. Yet this and similar sights are accepted today with little more than a passing comment. It is not only because the observer is now often engaged on tasks which make his hobby take second place. It is because the railway atmosphere has lost much of its geniality. How can it be otherwise when it is the national duty of the companies to keep casual passengers at an arm's length? The question is, will that genial atmosphere return after the war?

If planning and amalgamation, possibly not directed by railwaymen, are to be carried further, there is a prospect of the still surviving individualities being ruled out and of a decline among the newer-recruited staff of that enthusiasm for their own company and district which produced such good results before the war, as will be recalled by studying the files of journals such as the L.M.S.R. *On Time* and *Quota News*. It is comforting to observe at least that there seems to have been no diminution in the nucleus of potential railway devotees among the public. While lecturing recently to an audience of ages between fifteen and eighteen on an aeronautical subject, we noticed that at intervals every head turned towards the window. Following the general gaze, we found that the room looked out on a railway line, where G.N.R. Atlantics and L.N.E.R. "K3's" passed periodically. These engines, working trains of no particular fame or distinction on a secondary line, were still sufficient to divert attention momentarily from our tale of Stirling, Lancaster, and Halifax. It will rest with those who "plan" for the railways in the post-war period to see that the rising generation is not disappointed in the great industry for which it has an inherited affection.

The Educational Value of the Technical Press

AS industry becomes technically more and more complex the difficulty of keeping abreast of recent developments is a major problem. In a stimulating address given recently to the Graduates Section of the Institution of Mechanical Engineers, to which we refer on another page in this issue, Mr. J. Foster Petree, M.I.Mech.E., Joint Editor of *Engineering*, showed how great a debt industry owes to the technical press in fulfilling the extremely important function of rapid and reliable dissemination of technical information. Mr. Petree said that the technical press as it is known today originated with Birkbeck and the Mechanics Institutions which gave rise to a reading public for technical journals, as, for example, the *Mechanics Magazine*.

In the early days much material not of a purely technical nature was published in journals of this type, but with the passage of years and with increasing competition the standard of technical journalism in this country improved greatly, so that at the present time it compares very favourably with that reached in other countries. Mr. Petree referred to the difficulty of differentiating between the technical press and the trade press and gave as a criterion the employment of fully qualified editorial staffs as a means of drawing a distinction between the two types of publication. He mentioned, however, that much valuable information is hidden away in very unlikely publications and that in consequence an exhaustive search is frequently necessary.

Although textbooks must remain the foundation on which technical education is based, they cannot, from the nature of conditions, be up-to-date. It is this gap between the textbook and present practice which the technical press is in a position to fill. In each branch of industry it covers adequately the many aspects likely to be of interest to the reader and forms an accurate picture of current events. It may, and frequently is, the only source of information available and in this respect Mr. Petree mentioned that before an important attack in the last war one of the back numbers of a technical journey was consulted for a description of the target.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

What is "Private Ownership"?

London. September 24

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—In the discussions in the columns of *The Railway Gazette* and elsewhere about the future of transport, there has been much canvassing of Mr. Herbert Morrison's declaration that the transport industry is "ripe—or over-ripe—for public ownership and management" under a "public corporation" of the London Passenger Transport Board type. To this the objection has been taken, as in *The Railway Gazette* of June 18, 1943, that the proposed solution does not mean public or state ownership at all, but merely the continuance of private ownership with management free from responsibility to the "owners." "If the owners of an undertaking do not control the management," it is said, "they continue to take the risk in providing the capital but they would be unable to protect their capital against risk" (*The Railway Gazette, loc. cit.*). Thus, the argument seems to be, those who "provide the capital" are, *ipso facto*, "the owners" and that the owners, so defined, "ought" as a matter of principle to be in a position to protect their capital against risk by direct control of the management.

There may well be weighty objections on other grounds to the wider application of the public corporation precedent to the post-war organisation of particular industries, such as transport, but there is surely nothing anomalous or even novel in the relationship to the management of the private investor in the stocks of public corporations. Vast amounts of capital have been provided by the private investor—and indeed, broadly, who else is there to provide it?—in the form of debenture and preference stock to finance trading ventures without any right on the part of the investor to a say in management if he does not care for the way the managers behave, save in the event of default. The truth is that there is no divorce of ownership and management in the public corporation for the simple reason that the stockholder is not an "owner" but, in effect, a debenture holder. If there is default by a public corporation, the governing statute invariably provides the right to apply to the Courts for the appointment of a receiver. Whether in the event of default in a given case it is wise for the stockholders to exercise their rights is, of course, a matter of expediency. It depends upon whether it is thought that a receiver would do better than the publicly-appointed managers.

But, it will be said, that may be all very well in the case, for example, of the Central Electricity Board, which is in a cast-iron position to pass on to consumers the financial effects of any inefficiency. What about public corporations in industries such as transport, which must have a buffer stock of the quasi-equity type, like London Transport "C" Stock, to absorb the inevitable fluctuations in earning power consequent on changes in the level of business activity? On this it is not to be forgotten that, like the interest on the London Transport prior charge stocks, interest on "C" Stock at a prescribed "standard rate," namely 5½ per cent., is a charge on the undertaking. If it is not paid the receiver and manager provisions can be invoked under certain conditions. In short, the interest on all the stocks of public corporations on Mr. Morrison's London Transport model, which, by the way, was not a new model but dates back to the Metropolitan Water Board and the Port of London Authority, is analogous to debenture interest, failure to meet which may involve the imposition of sanctions similar to those open to debenture holders who are neither "owners" nor entitled to a voice in management.

The real point at issue is not whether those who provide the capital "ought" to be able to protect their capital against risk, but whether the public board system is as effective a method of administration as remote control by shareholders working through self-appointed directors and necessarily and rightly animated by the profit motive. That, of course, is a matter upon which divergent views will continue to be held. From the point of view of providing the capital, the investor, as always, is well able to look after himself; he will continue to invest in the stock of public corporations, if the terms are right. In this connection it may be relevant to note that despite the separation of ownership (*sic*) from control over the management, the private investor still regards the credit of the London Passenger Transport Board as better than that of the main-line railways, although like the latter the board has no extraneous resources to fall back upon.

Finally, is it not time that the Victorian theory of the control exercised over managements by shareholders was decently interred? To what extent in practice can and do private investors "protect their capital" in the face of the opposition of directors with their pockets stuffed with proxies? It may be suggested that one real pull private enterprise has hitherto had over public enterprise is in its relatively greater willingness to dispense with the services of failures in high places. Here, incidentally, lies the cardinal weakness of the Civil Service.

Yours faithfully,

CROSS BENCHER

Transport and its Track

42, Frederick Street,
Edinburgh. August 5

TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—Referring to your editorial article on this subject in *The Railway Gazette* of July 23, the railways say that when ideas are put before them they must be examined from every viewpoint. May a somewhat different view be expressed?

It is the total costs that count in transport, is it not? The railways say that if they were given more traffic they could carry it more economically; but practically any manufacturer and coal-master says the same thing about his products, and the problem in most trading companies is to conduct the business on the most economical lines for the amount of orders that are being obtained.

There were roads before there were railways, and even when the country was well equipped with railways, roads were still necessary, hence it does not seem right to saddle mechanically propelled road transport vehicles with the whole cost of the upkeep of roads and the whole interest on the capital cost of them. Would it not be fairer to charge, say, 70-90 per cent. of the upkeep to them and the interest on the cost of new roads since, say, 1900?

The amount that the Government was receiving from road transport vehicles was rising rapidly in pre-war days:—

In 1931-32 it was £57,000,000
In 1937-38 it was £85,000,000
In 1938-39 it was £93,000,000

Consequently this revenue was probably meeting its fair share of upkeep expense and interest on capital, and leaving a bit over.

The railways have about £700,000,000 sunk in track, but can anyone say this money has been wisely spent, and that our railways are well laid out to suit the country? Brunel tried to show the advantages of easy curves, easy gradients, and the wide gauge; what a pity he did not use 6 ft. in place of 7 ft. 6 in. Then about 1850 somebody tried to show the advantage of the wide carriage (9 ft.); but neither of these lessons was learnt. There was also the railway ramp which George Stephenson did his best to stem. Consequently, if the railways are overloaded with expenditure on track, they can hardly expect the public to meet the interest on it. As it is, it costs the railways £26,000,000 + £30,000,000 to meet the upkeep and interest on their track, but as they claim to be the senior transport service, it might be claimed that they are getting off lightly.

If the costs of running a passenger train are compared with those of a motorbus on the basis of equal receipts and equal capacity, there are good grounds for suggesting that the costs for fuel, traffic expense, maintenance, and general expense are about equal (maintenance of roads, bridges, works, permanent way, and signals and telegraphs excluded in the case of railways).

From figures given in the "Oil Engine Manual" it appears that the total operating costs of oil engined goods vehicles per ton mile in pence, including interest, are:—

Four wheeler carrying			
Miles per week	2 tons	4 tons	7-8 tons
200	6	3·5	2·5
500	3·5	2	1·5
1,000	2·5	1·5	1

Six and eight wheelers			Maximum loads	
	6 tons	9 tons	6 wheels (12 tons ?)	8 wheels (16 tons ?)
200	2·5	2·2	2	1·7
500	1·5	1·4	1·2	1
1,000	1	1		0·75

What is the cost per ton mile on the railway for goods?

Ratios (1938)	Passenger		Goods
Receipts	75	:	87
Engine mileage	304	:	227
Engine hours "in traffic"	24	:	36
From Weir Report, page 44, expenses of steam working for a representative section, exclusive of station staffs, track charges, and general expense	6	:	9
or	9	:	13

The average receipts per ton mile were—	
Passengers	9d. ?
Merchandise (ex classes 1-6)	2d.
Minerals and classes 1-6	0·96
Coal, coke	1·07
All freight	1·35
The total net ton miles were	16,672,000,000
The total expenditure on railway working was ...	£137,600,000

If all the expenditure was charged to goods, the cost per ton mile would be 2d. If the expenses were charged half to passenger and half to goods it would be 1d. On the half-and-half basis goods would be contributing to interest £18,000,000 and passengers £7,000,000.

Apart from mineral traffic and classes 1-6, it looks as if road

transport is as cheap to run, if not cheaper, than railways in this country.

By far the majority of the goods wagons in this country carry only about 10 tons, whereas in U.S.A. the average freight car carries about 40 tons, and the average coal car say 70 tons (50-100). And the average haul in that country is about six times as long as it is here.

Where large lots of traffic have to be hauled long distances, as in important countries *other than* Great Britain the railway is the cheapest form of inland transport ever invented. But in this country the problem is to transport small lots over short distances ; and it is very questionable indeed if the railways, as at present constituted, are the most economical for that purpose. Taking the very long view and considering the matter nationally it is a question if the railways should not be converted into super motor tracks with a different road bed from anything we know.

During, say, 1830-1850 this country got the railway from the coalmaster who had mechanised the " tramways." It provided a new outlet for goods, competed with canals and horse-drawn transport, and largely ousted them. During 1920-1940 this country obtained the revived road transport with its new road bed, hydrocarbon bound in place of water bound. This type of inland transport has cut deeply into railway traffic, just as it had cut into the old forms ; and judging from the way it has been able to maintain armies in the field with long lines of communication over difficult country it may do so much further.

During the last fifty years or so the basis of much engineering and manufacturing practice has been completely changed, and it is noticeable that the new form of transport uses very efficient tools. The bases of railway tools and methods of working are still much the same as they were about one hundred years ago ; for example, the steam locomotive, and the method of staffing stations. The latter was copied from stage coach practice and has been developed on that foundation with little change ; in U.S.A., a very different system is used. Changed conditions call for changes in policy, and if the railways wish to strengthen their position all they have to do is to introduce more efficient tools and methods of working which would be basically different from those in use—just as has happened in other industries, namely, the " mechanisation of mines."

Your faithfully,

S. MACDONALD

[(1) We did not suggest that road motor transport should pay the whole cost of the roads ; on the contrary, we made no suggestions at all regarding payment, and that was not the point the article was concerned with. (2) According to the British Road Federation statistics the amount paid by the motor industry in licence and fuel duties totalled £55·3 millions in 1931-32, £79·1 millions in 1937-38, and £87·2 millions in 1938-39, and we estimated that of the £79 millions (we rounded it to £80 millions) about £20 millions was paid by public road transport or about 11-12 per cent. of its gross receipts compared with 34 per cent. paid by the railway for its track. (3) The public (that is, the taxpayers) is not and has never been asked to meet the interest on the railway track but it is on the roads. We do not say whether this is good or bad ; all we point out is the effect on competition between rail and road, particularly for freight traffic. (4) The figures given by Mr. Macdonald do not prove that " road transport is as cheap to run if not cheaper than railways in this country," as, at least, the figures he uses for railways are based on the carryings for 1938 which ignore the spare capacity of the railways arising from the unequal competitive position *vis-a-vis* road transport. The true picture is as given in the article which assumed economic loading by each form of transport. (5) Summed up, all we say is this : here is this obvious difference, which prevents public transport being operated most efficiently and economically in the national interest ; it can only be overcome by planning transport as a whole and not sectionally as hitherto.

As to our correspondent's other points, certainly there were roads before railways, but (excepting for purely local traffic) they were toll roads maintained by turnpike trusts. It was the prohibitive tolls imposed by these trusts which prevented mechanical road transport being developed during the period up to 1865, when the Red Flag Act was passed. The free road developed in subsequent years, when there was no mechanical road transport, and consequently very little long-distance road traffic. Apart from any question of desirability, railways in general are unsuited for conversion into motor tracks by reason of their narrowness. Few British railways run for any great length on a level with the surrounding country ; they are either elevated on embankment or viaduct, or sunk in tunnel or cutting. Most of these structures are too narrow to permit of conversion into roads, without extensive purchases of land and very substantial engineering works. The flanged wheel, by keeping a train on a fixed narrow track, without steering, permits of the maximum speed with the minimum occupation of track width. Early portions of the G.W.R. system, constructed for Brunel's broad gauge, had a larger structural gauge, but even this would be insufficient for modern road traffic. Incidentally, Brunel's broad gauge was not so wide as Mr. Macdonald thinks. It was 7 ft. 0¼ in., and not 7 ft. 6 in.—ED., *R.G.*]

Publications Received

A National Transport Programme. London : *The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1. 8½ in. × 5½ in. 27 pp. Price 1s.—Sir James Milne, Chairman of the Railway General Managers' Conference, has written a foreword to this pamphlet, which is a reprint of a series of editorial articles which appeared in *The Railway Gazette* between June 18 and September 3 this year. The object of the articles was to outline the approach of a long-term plan for transport, and among the subjects covered were State and private ownership ; the incidence of peak traffic ; the incidence of track costs on transport ; railway expenditure and its relation to employment ; catering policy ; and so forth. (See editorial article, page 324.)

Copper and Brass ; Railway Rolling Stock Material.—Publication B.S. 24 : Part 5 : 1943, of the British Standards Institution is one of a series of six, all of which relate to railway rolling-stock material. The other parts of Report No. 24 are : Part 1. Locomotive Carriage & Wagon Axles ; Part 2. Locomotive Carriage & Wagon tyres ; Part 3. Springs & Spring Steel ; Part 4. Steel Forgings, Blooms, and Castings ; Part 6. Steel Plates, Sections, Bars, and Rivets for Locomotive Boilers, Locomotives, Carriages, Wagons. Part 5, under review, contains six specifications and an appendix. The specifications are : No. 11 : 1943. Copper plates for locomotive fireboxes ; No. 12 : 1943. Rolled copper rods for locomotive stay bolts, rivets, etc. ; No. 12A. Extruded copper rods for locomotive stay bolts, rivets, etc. ; No. 13 : 1943, Copper tubes for locomotive boilers ; No. 14. Brass tubes for locomotive boilers ; No. 15 : 1943. Seamless copper pipes for locomotives. The appendix gives the forms of British Standard tensile test pieces. Copies of this publication, price 2s. net, post free, are obtainable from the British Standards Institution, 28, Victoria Street, London, S.W.1.

Are You Research-Minded ? Industrial Research : What It Means to British Industry.—This pamphlet has been written by Sir Harold Hartley, F.R.S., Vice-President of the L.M.S.R., in the confident belief that industrial research is going to be the vital factor in determining the future prosperity of Great Britain. In it Sir Harold Hartley shows why the need for industrial research is so urgent, what it can accomplish, and how businesses, large and small, can take advantage of it. A reference to the pamphlet is made in an editorial article on page 323.

D. A. Low's Pocket-Book for Mechanical Engineers. 4th Edition. Edited by Bevis Brunel Low, M.A., A.M.I.Mech.E., A.M.I.A.E. London : Longmans, Green & Co., 43, Albert Drive, S.W.19. 6 in. × 4½ in. 770 pp. Over 1,000 illus. Price 15s. net.—This is the fourth revised edition of a pocket book that has been considered as one of the standard engineering works of reference since its first appearance in 1898. Its contents are for the greater part so well known that they do not need description here. Mention may be made, however, of some revisions ; these affect the sections on boilers and compressed air. Temperature conversion tables have been extended to cover a wider range. To the section on locomotives there has been no change. This includes the classic formulæ for tractive effort and train resistance ; also some proportion ratios for boilers and so on. A few details of construction are illustrated ; these are suggestive of railway practice a good many years ago and this section should be considered as due for revision in the next edition.

The Swain Mixing Valve for Gas Producers.—A booklet bearing this title has been received from the Tilling Association Limited, 15, Curzon Street, London, W.1. It describes an appliance developed by Thomas Tilling Limited for use with bus, lorry, and similar internal-combustion engines that may be required to run on producer gas. A barrel-type valve is used instead of a butterfly valve ; the advantage claimed is that its action is less liable to be adversely affected by gummy deposits. Such a valve is self-cleaning ; this gives the further advantage that it needs servicing only at long intervals, say, every 4,000 miles. The booklet under review describes the fitting and servicing of this well-tried device, which is applicable to petrol engines but not to heavy-oil engines.

Tachymètres Tachygraphes pour véhicules sur rails.—A well-produced book of this title has been received from the well-known Swiss house of Hasler, makers of Teloc and Tel speed and distance indicators. Very comprehensive illustrated descriptions are given of instruments in great variety for different purposes. Some of these are of the recording pattern and provide charts either on discs or ribbons of paper. Methods of installing Hasler instruments on railway vehicles are fully described; the concluding section is devoted to the various kinds of drive that can be used. Flexible cable and universally jointed shafts are both applicable. The book is written in French but even for one who is not familiar with the language there is much information because most of the diagrams are self-explanatory.

The Scrap Heap

The Transport & General Workers' Union has given another £1,000 to the United Aid to China Fund.

* * *

The London Transport National Savings Group has already purchased over 900,000 certificates and hopes to reach the 1,000,000 target within the next few months.

* * *

To the Reader

Each printed page that in your hand you hold
Is, roughly speaking, gold.
Treat it as such, and when your reading's done
File it or pass it on.
Alternatively, drop it gently in
The salvage bin.
Commit it not, this very precious paper,
To furnace flame or taper,
Lest you should have, as may one day befall
Nothing to read at all.

* * *

Spoil from the Japanese

Native women on the island of Guadalcanal in the Solomons have reaped more than one advantage from the Japanese defeat. The islanders searched the beaches which were the scenes of last year's heavy fighting, and, as a result, now have more kitchen utensils—in the shape of Japanese helmets. Sections of Japanese collapsible boats mounted on wheels make excellent village handcarts. Swords which once adorned Tojo's officers are now used to dig potatoes, and the women wear bracelets made from the metal of crashed Zeros. The season's musical hit in the island is a song in pidgin English which tells of the Japanese defeats. Each verse ends with the derisive line, "Me laugh along you Japani, ha! ha!"—*From "The Crown Colonist."*

* * *

Successful Year for London Transport Farms

The lifting of potatoes is in full swing at L.P.T.B. farms. During August, over 52 tons were taken from seven acres at Staines; it is hoped that 350 tons will have been collected this year, as well as 300 tons of green vegetables, and between three and four tons of tomatoes. To assist the regular farm workers, who are mainly London Transport employees, a few girls of the Women's Land Army have been employed.

London Transport farms last year provided 80 per cent. of the vegetables used in the staff canteens, and will have done so this year, in spite of the increased number of canteens. At the moment, the Catering Department is receiving the whole of its requirements of potatoes. About 8 cwt. of tomatoes a week are being distributed to the canteens.

* * *

Railway Travel in Yorkshire, 1843

The *Yorkshire Post* quotes from the experiences recorded by a Massachusetts railway director who came to Leeds on September 20, 1843, in the course of a two months' tour of Europe. This director says that a railway carriage in which he travelled "has no cushions or windows, and swings so much as often to throw my umbrella and myself to the edge of the seat" and he gives to his fellow passengers a description of the enclosed, lofty, and well-ventilated American carriages which were warmed by fires in winter, and "move so easily that in some of them letters have been written." He also mentions that the ticket clerk at Woodlesford, near Leeds, was a negro.

* * *

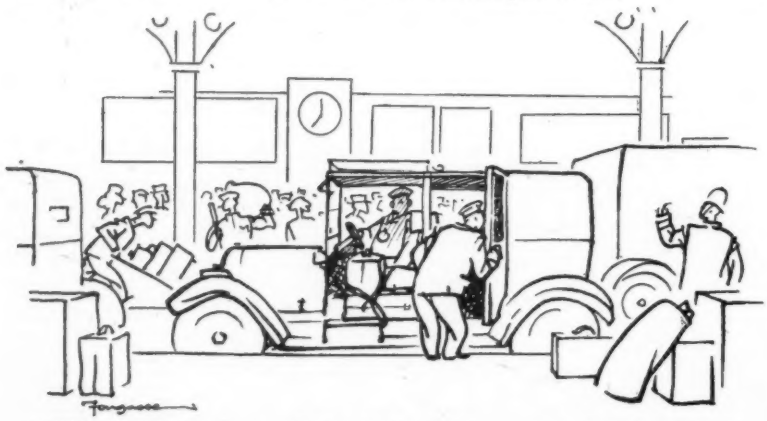
Symposium

The programme for the first half of the coming session of the Institution of Mechanical Engineers includes, on each of two occasions, a symposium of papers. In the "Concise Oxford Dictionary," symposium, among other definitions, is given as a "set of contributions on one subject from various authors . . ." The first, and presumably the usual, definition, however, is "ancient-Greek after-dinner drinking-party with music, dancers or conversation." Although it is scarcely suggested that the activities of the Institution have had any bearing on the matter, it would be interesting to know what august body, by the conduct of its meetings in days gone by, caused the word to acquire its more sober meaning.

* * *

Bacon in Bulk

According to figures compiled by the Canadian National Railways, 179,610,587 lb. of bacon for export were handled by the company in the first seven months of this year. This was 13,736,987 lb. more than that handled during the same period of 1942. Each van contains an average of 52,500 lb. of bacon, and this year's traffic took 3,454 refrigerator vans to handle it. Last year, the Canadian National Railways transported 260,685,373 lb. of bacon, the bulk of which was shipped to England. This movement represented 4,918 vanloads. The vehicles used included the new overhead-ice refrigerator vans.



"Where for, Sir? . . . and what train, Sir? . . . and what day, Sir?"

[*Reproduced by permission of the proprietors of "Punch"*]

Mr. C. Grasemann, Public Relations & Advertising Officer, Southern Railway, has sent us the photograph below with the

suggestion that we might "care to include this excellent photograph entitled 'British railways help to make children safety minded'."

* * *

Where Praise is Due

Much has already been written in praise of the work done by the railways in wartime, but I think it is time tribute was paid to those connected with railway advertising. They have had many difficulties (scarcity of boards, shortage of staff, paper restrictions, greatly increased demand for space, to mention but a few), and yet they have succeeded in giving almost pre-war service—and what is more, it has invariably been "service with a smile." They have provided every facility for selection and inspection, and have striven at all times to accommodate every advertiser according to his requirements. They have not, generally, increased their rates, although they could claim, as others have done, that costs have risen and that passenger traffic is greater than it has ever been, so that the "circulation" value of every site has increased. In fact, it has been a pleasure to do business with them, and I have no doubt that they will reap the reward of their long-range policy in the post-war period.—*Mr. D. De Grunwald, London Manager, Morse Sales Company, in a letter in the "Advertisers' Weekly."*

* * *

Tailpiece

(Sir Harold Hartley, Vice-President of the L.M.S.R., in a pamphlet, "Are You Research Minded?" urges full use of scientific inquiry in peacetime problems)

When peace and plenty come again
And men are faced with problems new,
They'll use the scientific brain
To solve them—as the railways do.

The money and the means are there,
Associations not a few
Have knowledge ample and to spare
For using—as the railways do.

In matters technological,
In matters economic, too,
In peace or war it pays to call
On science—as the railways do.

E. C.

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

INDIA

Transport of Food

Sir Edward Benthall, War Transport Member, Government of India, told the press recently that, during the last three weeks of July, the Government had despatched from the Punjab to Bengal an average of 36 wagons of wheat and 20 wagons of other types of grain daily. The Bengal Government's figures showed that 2½ million lb. of rice, paddy, and wheat had been imported daily by Calcutta during that month. More could have been sent from the Punjab if arrangements had been made for reception. The Government planned to dispatch 120 wagons of food daily to the Calcutta area, in connection with the food shortage there.

UNITED STATES

Abandonment Proposals

Further proposals for the extensive abandonment of lines are the subject of recent applications to the Interstate Commerce Commission. The Chicago & North Western Railway has applied for permission to close 87 miles between Illco and Shoshoni, Wyoming, near the western end of its 1,276-mile Omaha-Lander branch, and to enter into agreement with the Chicago, Burlington & Quincy Railroad, to operate its traffic under trackage rights over the latter's parallel line between these two points, which runs from Denver to Billings *via* Wind River Canyon. This scheme would involve the construction of a 300 yd. connecting track at Illco, and a connection 3 miles long from the C. & N.W. at Shoshoni to the C.B. & Q. at Bonneville. The I.C.C. examiner has reported favourably on the plan, provided that the C. & N.W. management makes suitable arrangements for the absorption or compensation of employees displaced by the closure.

The International-Great Northern Railroad has been refused permission to close its Texas branch from Navasota to Madisonville, 45 miles long, the operation of which is involving serious loss, due to the diversion of traffic to other routes by the Office of Defense Transportation, on the ground that the previous position will be restored when the war ends. The Southern Railway system has applied for authority to close and abandon its 50-mile line from Rome, Georgia, to Gadsden, Alabama. The Pere Marquette Railway has been authorised to abandon two lines in Michigan, one of 19 miles from Remus to Big Rapids, and the other of 11 miles from Lakeview to Howard City.

New York Central Locomotives

A further batch of 4-8-2 steam locomotives of the type introduced at the end of 1940, was delivered recently by the Lima Locomotive Works to the New York Central System. The 25 engines introduced in 1940 were known as Class "L-3a"; the new series, also of 25 engines, is classed as "L-4a." The latter incorporate certain modifications which are the fruit of experience gained with Class "L-3a." The main changes are an increase in driving-wheel diameter from 5 ft. 9 in. to 6 ft., and enlargement of cylinder diameter from 25½ in. to 26 in.; thus the tractive force is practically unchanged, but it is expected that the "L-4a" engines will be capable of maintaining a maximum i.h.p. of 5,400, as compared with the 5,260 i.h.p. of the "L-3a" series, and of developing 4,300 drawbar h.p. at 60 m.p.h., compared with 4,120 drawbar h.p. at 58 m.p.h. Certain substitutions had to be made in the new engines, as the result of shortage of materials, in particular that of steel for aluminium, which has resulted in an increase in weight; steel had also to be used in place of copper tubing, and steel instead of bronze bells. The piston stroke of each new engine is 30 in.; firebox heating surface, 373 sq. ft.; evaporative heating surface, 4,676 sq. ft.; superheating surface, 2,103 sq. ft.; firegrate area, 75·3 sq. ft.; working pressure 250 lb. per sq. in.; and tractive effort, 59,900 lb. The weight of each engine in working order is 177½ tons, of which 118½ tons is available for adhesion; and the 12-wheel tender, accommodating 15,500 gal. of water and 42½ tons (38 tons of 2,240 lb.) of coal, weighs 168½ tons, making a total for engine and tender of 345½ tons in running trim. The fifty 4-8-2s are versatile machines, equally capable of handling fast, heavy freight trains, and express passenger trains.

ARGENTINA

State Railways Insurance Fund

By a resolution of the Argentine Ministry of Public Works, the State Railways administration has been authorised to open a special war-risk insurance fund, to be formed by the payments which the administration, in the normal course of war-risk insurance, would pay for the insurance of materials and equipment purchased in the United States of America. The premium is to be calculated on the c.i.f. Buenos Aires, plus 10 per cent. This resolution is regarded as signifying the approval of the Ministry of Public Works of the action taken several months ago by the State Railways administration to create its own war-risk insurance service as a means of avoiding the high premiums charged by both Argentine and foreign insurance companies.

The proceeds of the fund will be used to cover losses sustained through belligerent action at sea on materials and equipment purchased in the U.S.A. under the following conditions:—

(*a*) That shipment is made in vessels belonging to the State Mercantile Marine.

(*b*) That unforseen events do not occur, the effect of which is to alter the conditions of comparative safety under which the State vessels at present operate.

(*c*) That the war-risk insurance-premiums charged by the private companies continue to be considered high.

The State Railways administration has been instructed to study the practicability of setting up a permanent insurance organisation applicable to its purchases of materials and equipment, and to submit the details for Government consideration and approval.

Buenos Aires Central Railway

By a Government Decree dated July 22, the Buenos Aires Central Railway has been ordered to resume its services between Chacarita (Buenos Aires), San Martin, and Campo de Mayo, at present operated by the City of Buenos Aires Transport Corporation, in accordance with the terms of the company's concession. The Decree states that the Government no longer can permit the service to be carried on in its present form, as it represents a yearly loss to the Transport Corporation of 500,000 pesos, which has to be borne by urban traffic receipts. The railway company is to utilise the rolling stock previously owned by the Lacroze Tramway Company and at present leased by the Transport Corporation (the railway company had transferred the service in question to the Lacroze Tramway Company shortly before the formation of the Buenos Aires Transport Corporation).

BERMUDA

Ownership of Road Vehicles

By a vote of 22 to 10, the House of Assembly has agreed to the introduction of legislation to permit the ownership and operation of motorcars by private individuals; incorporation of a company, the entire stock of which is to be owned by the Colonial Government, to be the exclusive owner and operator of bus service throughout the Islands; ownership and operation of lorries by individuals, firms, and companies; establishment of motor-taxi services, to be owned and operated by individuals, firms, or companies employing not less than a fixed minimum of vehicles; and protection of third parties against risks.

SPAIN

Railway Construction

Reports from Spain indicate the progress which is being made with railway construction in that country. The first section has been opened of the Zamora-Coruña line, in north-western Spain, which, when completed, will shorten considerably the distance between Madrid and the latter point. It is not likely that the line will be open throughout before the end of 1945. Among lines placed in service recently is that of some 60 miles between Castejon (on the Zaragoza-Bilbao line) and Soria (on the Burgos-Calatayud line). The Burgos-Calatayud line is one of the sections open to traffic of the almost-completed Valencia-Santander railway, which is open from Valencia, *via* Caminreal, Calatayud, Soria, and Burgos, as far as Cidad, which lies to the south of Santander on the Bilbao-Leon narrow-gauge line.

CEYLON

Claims for Damage

To expedite the settlement of claims made by the public for loss or damage to goods conveyed by the Ceylon Government Railway, an arrangement has been introduced whereby all inquiries are dealt with in one office. All inquiries and settlements are to be dealt with by the Commercial Superintendent of the railway. Steps have been taken also to ensure that reports of thefts of goods, or of delay to goods and consequent damage, are received promptly by him.

Second Class Accommodation

The proposed abolition of second class accommodation on the Ceylon Government Railway (referred to in *The Railway Gazette* of March 17) is not likely to be effected. It is understood that the Acting Financial Secretary has submitted to the Board of Ministers the view that no action should be taken on the recommendation of the Executive Committee of Communications & Works in favour of the abolition of second class. The Acting Financial Secretary holds the view that this would inflict hardship on a large section of the travelling public; and the proposed measure is opposed also because of the financial loss which it would entail: it is estimated that the loss of revenue involved might amount to as much as Rs. 1½ million yearly.

The Railways of Argentina

Some details of the systems which serve an area of 1,079,965 sq. miles

THERE have been many references of late to the possibility of some change in the status of the privately-owned Argentine railways, and nationalisation has been the subject of calculation and conjecture. In these circumstances, the following description of the principal features of the railway system of this great South American Republic is of interest. The Argentine Republic has an area of 1,079,965 sq. miles, equivalent to twelve times the area of Great Britain, or 29 per cent. of the area of Europe. Roughly 2,000 miles from north to south and 1,000 miles in maximum width, the Republic extends from latitude 21.40 S. to 55.5 S. Its products, and therefore the traffic carried by its railways, vary from the tropical fruits, sugar, etc., of the north, and the grain and cattle of the great central plains, to the sheep farming of the colder Patagonian region in the south. The population in 1941 was estimated at 13,320,641, and of this total Buenos Aires, the Federal capital, claimed 2,385,959. The ratio outside the capital, therefore, is rather more than ten inhabitants to the sq. mile, and yet in this great territory a system of nearly 27,000 miles of railways has been developed—more than the total route-mileage of Great Britain—and in this development British capital has played a leading part.

Some £270,000,000 of British money are invested in the railways; the capital expenditure of the different companies, with the corresponding mileage is as follows :—

	Capital £	Route Miles
Buenos Ayres Great Southern	86,000,000	5,082
Central Argentine	77,000,000	3,700
Buenos Ayres & Pacific ...	52,000,000	2,801
Buenos Ayres Western ...	34,000,000	1,940
Entre Rios	10,000,000	809
Argentine North Eastern ...	7,000,000	753
Buenos Aires Midland	4,000,000	322
	£270,000,000	15,397

The total capital actually expended exceeds the amount of capital created and issued in the form of shares and debentures by over £13,000,000, which expenditure has had to be met by using Renewals Funds and internal reserves. For some time past, the financial position of all the companies has been such as to preclude the possibility of raising fresh capital to meet even the most indispensable outlays.

The lines of the Entre Rios and Argentine North Eastern Companies are worked jointly under one administration and so are the Buenos Ayres Great Southern and Buenos Ayres Western Companies, which also lease and work jointly the Buenos Ayres Midland Railway. The mileage of the Buenos Ayres Great Southern includes the Bahia Blanca & North Western Railway (764 miles) and the Ensenada Railway (109 miles). In the total of the Buenos Ayres & Pacific Railway are included the Argentine Great Western Railway (1,452 miles) and the Villa Maria and Rufino Railway (141 miles). The lines of three other British companies, the Cordoba Central (1,218 miles metre gauge), the Argentine Transandine (111 miles, also metre gauge), and the Chubut Central Railway (66 miles of metre gauge and 101 miles of 2 ft. 6 in.), have been purchased by the State.

All the privately-owned railways operating under national concessions are of course subject to the inspection and regulations laid down by the federal authority. Legally, when the net earnings of a concession railway exceed 6·8 per cent. of the recognised capital during three consecutive years the tariffs are subject to revision, and under Law No. 5,315 the State may expropriate the railway by paying the amount of the recognised capital plus 20 per cent. In no case has the recognised capital been fixed.

The railways of the Republic extend, as the map shows, fanwise from Buenos Aires to the north, west, and south. In the great central and southern prairie region, the "pampas," railway construction was relatively facile. The Buenos Ayres & Pacific Company, for example, has one of the longest continuous lengths of straight level track in the world, 205 miles from a point west of Junin to Mackenna. Of the total route-mileage of all the railways (26,928) 15,397 miles—or 57 per cent.—belong to the British companies. Other privately-owned railways, mainly French, account for 3,053 miles, or 11 per cent., and the railway owned by the province of Buenos Aires for 527 miles; the remainder of the system, 7,951 miles, or nearly 40 per cent. of the whole, is owned and worked by the State. The lines of the four principal British companies, totalling 13,513 route-miles, are all broad gauge (5 ft. 6 in.), and those of the Entre Rios and Argentine North Eastern, separated from the main system by the Paraná river, are standard (4 ft. 8½ in.) gauge. The mileages and gauges of the different groups are summarised below :—

	5 ft. 6 in.	4 ft. 8½ in.	Metre	2 ft. and 2 ft. 6 in.	Totals	Percentage of total
British-owned railways	13,513	1,562	322	—	15,397	57·3
Other privately-owned railways	513	298	2,087	155	3,053	11·3
Total privately-owned railways	14,026	1,860	2,409	155	18,450	68·6
Province of Buenos Aires Railway ...	—	—	527	—	527	2·0
State railways	827	438	6,451	235	7,951	29·4
Total all railways	14,853	2,298	9,387	390	26,928	100·00

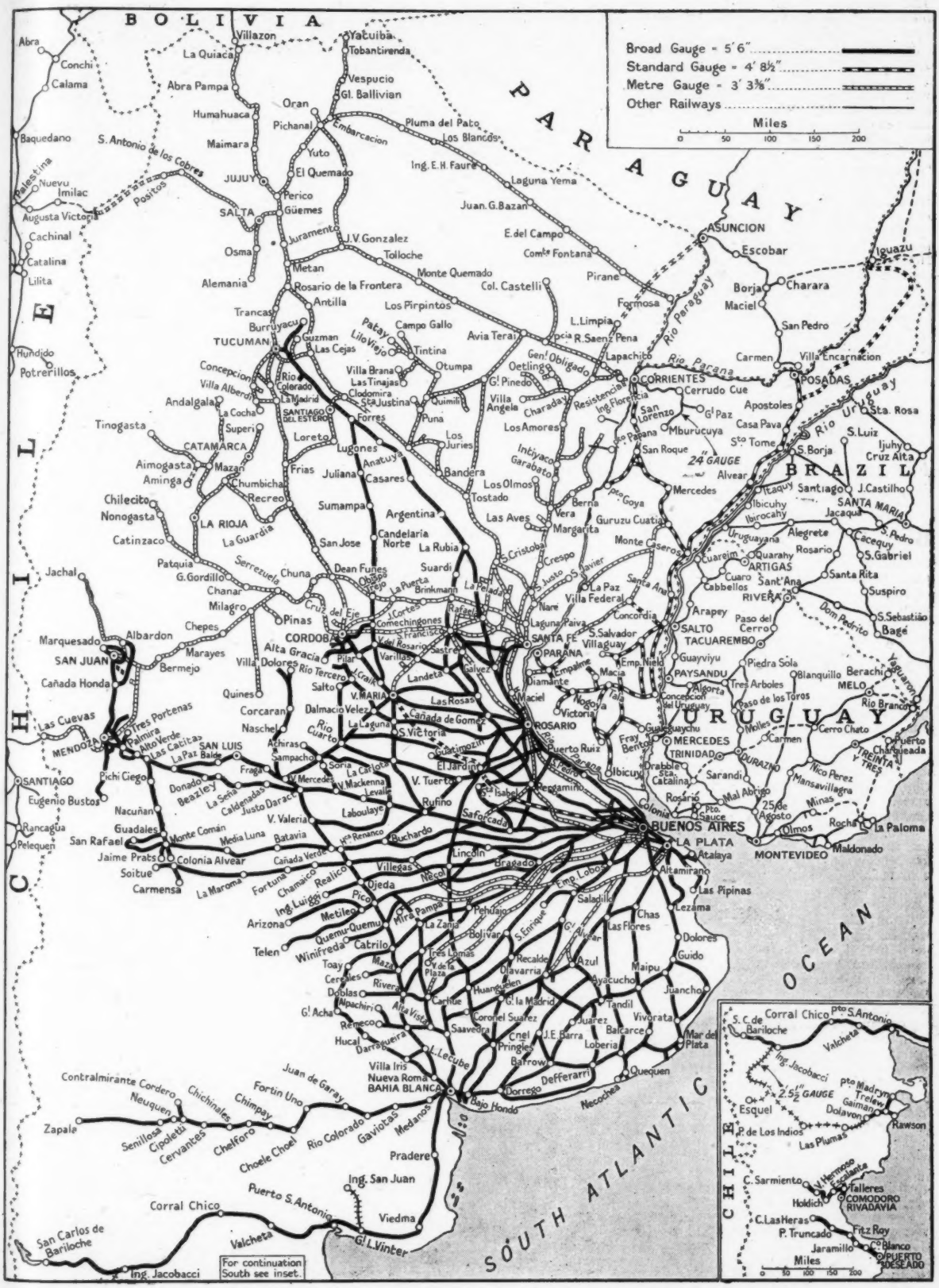
The adoption of the 5 ft. 6 in. gauge is said to have arisen out of the difficulty experienced in obtaining equipment when the first railway in the country was being constructed, at the time of the Crimean war. When the war terminated a quantity of surplus material, intended for India and therefore of the 5 ft. 6 in. gauge, became available, and the railway in question, the 4½-mile line from Buenos Aires to Flores, purchased some of it and was completed, in August, 1857, to that gauge which thus became standardised. There has been comparatively little development in the electrification of railways in the Argentine, and recent returns show a total of only 87 miles of electrified lines, 47 miles on the Central Argentine Railway, 23 miles on the Buenos Ayres Western, and 17 miles on the Buenos Aires Central. Diesel railcar services are, however, frequent.

Nearly one-third of the total length of the railways, 7,951 miles, is owned by the State and operated by the autonomous State Railways Administration. The principal system, known as the Central Northern Argentine, and now comprising 4,843 miles of metre gauge, originated in a railway projected from Tucuman to Salta and Jujuy, authorised by a Law of October 10, 1879. The first section, to Metan, was opened in 1886 and the line reached Salta in 1891. By the agreement of 1895 with the Bolivian Government, the line was extended to the border in 1908; the Argentine frontier station is at La Quiaca. The Tucuman—Santa Fé section, which was built under a guaranteed concession, was purchased in 1895, but was not completed to Santa Fé until 1907. Here the Central Northern connects with the French Province of Santa Fé line, which is also of metre gauge.

On the other side of the Paraná river the Federal Government owns and works the standard-gauge Eastern Railway, serving the river port of Diamante and connecting with the Entre Rios and Argentine North Eastern Railways, which are the same gauge. At Cordoba the Central Northern line connects with the ex-Cordoba Central —1,218 miles of metre gauge—which was purchased from a British company and merged with the Central Northern system in 1939. Various extensions are at present under construction or projected totalling 1,520 miles on the Central Northern and 188 miles on the Eastern. These railways form the northern and major portion of the State system. In the south the principal State railway is the broad-gauge line, 591 miles in length, running from the Buenos Ayres Great Southern Company's terminus at Patagones to the port of San Antonio, and thence to Bariloche. The State owns and works two other broad-gauge lines in the south; one, 130 miles in length, serves the oil wells at Comodoro Rivadavia, in the Chubut Territory, and the other, the 178-miles Puerto Deseado line, is still further south in the Santa Cruz Territory. In Chubut the Government recently purchased the British-owned Central Chubut Railway, 66 miles of metre gauge, with its 2 ft. 6 in. gauge extension from Dolovan towards the Andes. In this southern section of the State system some 400 miles of line are projected or under construction.

Below are shown the results of working the railways during the year 1941-42 :—

	Receipts	Expenses	Net receipts	% Working expenses to receipt
	$ ('000 omitted)	$	$	
State railways	120,665	91,832	28,834	76·1
British-owned railways :				
B.A. Gt. Southern	126,776	100,695	26,081	78·6
,, Western	45,874	38,188	7,686	83·2
,, and Pacific	76,254	61,584	14,670	80·8
Central Argentine	97,632	87,636	9,996	89·8
Entre Rios	14,284	12,014	2,270	84·1
Arg. North Eastern	10,085	7,789	2,296	77·2
Other companies	37,432	36,857	575	98·5
Total	529,002	436,594	92,408	82·5



The railways of Argentina, showing gauges, and (by means of broken lines) railways under construction or proposed

The aggregate gross receipts show an increase of $48,828,879 over the 1940/41 total.

The number of passengers carried in 1941/42 was 172,926,998, an increase of 7,708,372, or 4·66 per cent. as compared with the previous year. Goods traffic amounted to 45,245,989 tons, or 4,706,160 tons, 11·6 per cent. more than the 1940/41 total. Of the goods traffic 8,811,616 tons, or 19·46 per cent., were carried by the State lines.

None of the State lines has been electrified, but extensive use is made of diesel railcars. Some 2,800 miles of line are now served in this way, of which the greater part, 1,770 miles, belongs to the Central Northern system. The Argentine Government has planned an ambitious programme of further railway extension to meet the requirements of colonists and development in the areas concerned. In this is included the proposed longitudinal line along the base of the Andes and the extension of the new trans-continental line into northern Chile. At the moment, however, these and several other projects are in suspense pending an improvement in the general outlook.

Subjoined is a complete list of the Argentine railwasy :—

Railway	Owned by	Gauge	Route mileage
British Companies			
Buenos Ayres Great Southern Railway...	Company	5 ft. 5 in.	5,082
Central Argentine Railway	,,	,,	3,700
Buenos Ayres & Pacific Railway	,,	,,	2,801
Buenos Ayres Western Railway	,,	,,	1,930
Entre Rios Railway ...	,,	4 ft. 8½ in.	809
Argentine North Eastern Railway ...	,,	,,	753
Buenos Ayres Midland Railway	,,	1 metre	322
French Companies			
Rosario-Puerto Belgrano Railway ...	,,	5 ft. 6 in.	513
Province of Santa Fe Railway	,,	1 metre	1,300
Province of Buenos Aires Railway ...	,,	,,	787
Other Companies			
Buenos Aires Central Railway	Company	4 ft. 8½ in.	298
Correntino Light Railway	,,	2 ft.	155
Provincial Government			
Province of Buenos Aires Railway ...	Province	1 metre	527
State Railways			
Central Northern Argentine Railway ...	State	1 metre	4,898
Eastern Railway ...	,,	4 ft. 8½ in.	438
Patagones-San Antonio-Bariloche Railways	,,	5 ft. 6 in.	520
,, ,,	,,	2 ft. 6 in.	134
Cordoba Central Railway	,,	1 metre	1,218
Transandine Railway...	,,	,,	111
Chubut Central Railway	Leased	,,	66
Chubut Central Railway Extension ...	,,	2 ft. 6 in.	101
Comodoro Rivadavia Railway	State	5 ft. 6 in.	129
Puerto Deseado Railway	,,	,,	178
Formosa-Embarcacion Railway	,,	,,	89
Rosario-Fuentes ...	,,	,,	35
San Nicolas-Arroyo Dulce Railway ...	,,	,,	34

New Blue Ridge Tunnel, C. & O. Railway

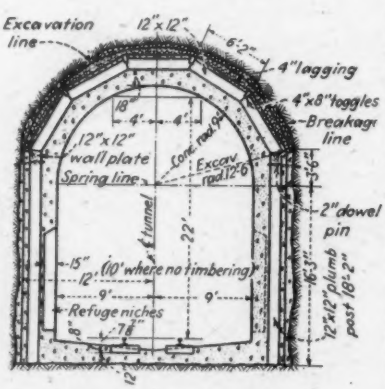
For war freight the old 18-ft. tunnel is being replaced by one 22-ft. in height, built on a two-mile diversion

BUILT between 1850 and 1859, the existing Blue Ridge Mountain tunnel on the main line of the Chesapeake & Ohio Railway, because it has a headway of only about 18 ft., is a serious bottleneck obstructing war materials traffic to Washington and the East. Though possessing some of the largest and most powerful locomotives in the States, this railway cannot use them for this important traffic because they cannot pass through the tunnel.

Its enlargement was first considered, but eventually it was decided that it would be as cheap, or cheaper, and more satisfactory to build a two-mile realignment including an entirely new 4,000-ft. tunnel through the ridge. The high estimated cost of enlarging the existing tunnel under continuous heavy freight and passenger traffic was the primary reason for this decision, but in addition the gradient is being eased from 1 in 80 to 1 in 111, compensated for curvature, and a long 13-deg. (6⅞-ch.) curve is being replaced by one of 3½-deg. (26¾-ch.). Both old and new are single-line tunnels, but whereas the former was 4,264 ft. long and lined in brick for only one-third of its length, the latter will be lined with concrete throughout. The important advantages gained by this construction work have insured its being one of the few to be continued, notwithstanding war curtailment of construction works and shortage of materials.

One of the most unusual features of the construction of the new tunnel is that, unlike the old one, it is being carried out from the eastern face only. The reasons for this are that there was little cutting excavation in the eastern approach, whereas some 350,000 cu. yd. had to be excavated at the western end. Consequently more than half the tunnel heading had been driven from the east face before the western cutting was completed and any boring could have been started from the west. Moreover, as the whole tunnel is on a continuous gradient rising from the east end, the removal of spoil by gravity was possible by working from that face. This spoil was also required for fills on the eastern approach. Drainage, too, was greatly facilitated by working up-grade. Most of the western cutting spoil, in fact, was railed through the old tunnel for the embankments on the eastern approach. The maximum depth of the cutting is 102 ft. on the centre line.

The tunnel is being excavated to full section, namely, 26 ft. high by 20 ft. wide, except where timbering is required, and there the dimensions are 28 ft. × 24 ft., with the lower 16 ft. having vertical sides, and the crown consisting of a 12-ft. circular arched excavation. This is shown in the accompanying diagram, as also are the concrete lining and general dimensions.



Cross section of new tunnel, showing timbering and concrete lining

The rock encountered varies from moderately hard Blue Ridge greenstone near the east end, to very hard rock in the middle, and treacherous shale near the western face. Single drill-bits correspondingly, could be used without change to depths varying from 2 ft. to only 1 in.

The usual cycle was: 4 hr. drilling and blasting, 5 hr. removing spoil, and 1 hr. scaling loose rock in each of two 10-hr. shifts. A combination drill-carriage and spoil-loader was used at the heading, mounting 13 drifters with which from 70 to 78 holes were drilled for each round of shots. Each hole was from 10 ft. to 12 ft. deep and was begun with a 2½-in. bit gradually reduced to 1⅞ in. at full depth. The loader delivered the spoil into side-tip trucks hauled by diesel locomotives in the open, but storage battery locomotives were used in the tunnel. The empty trucks were lifted by a compressed-air hoist on the drill carriage, to enable the loaded ones to be moved out.

Little water was encountered and the rock generally was solid, only 10 per cent. of the length requiring timbering, except near the west portal. Timbering consists of five crown members forming an arch supported by wall plates and plumb posts, all 12 in. × 12 in. in section. The concrete lining, using some 25,000 cu. yd. of aggregate, is being placed with wooden shuttering; the main side-wall and arch shuttering are carried on a timber traveller. A length of 60 ft. of shuttering is being moved forward and filled in each one-day cycle.

Though the construction work as a whole was begun in November, 1941, tunnelling started only in May, 1942. Rate of progress at the heading has averaged 300 ft. a month, and it is expected that the whole work will be completed in November, 1943.

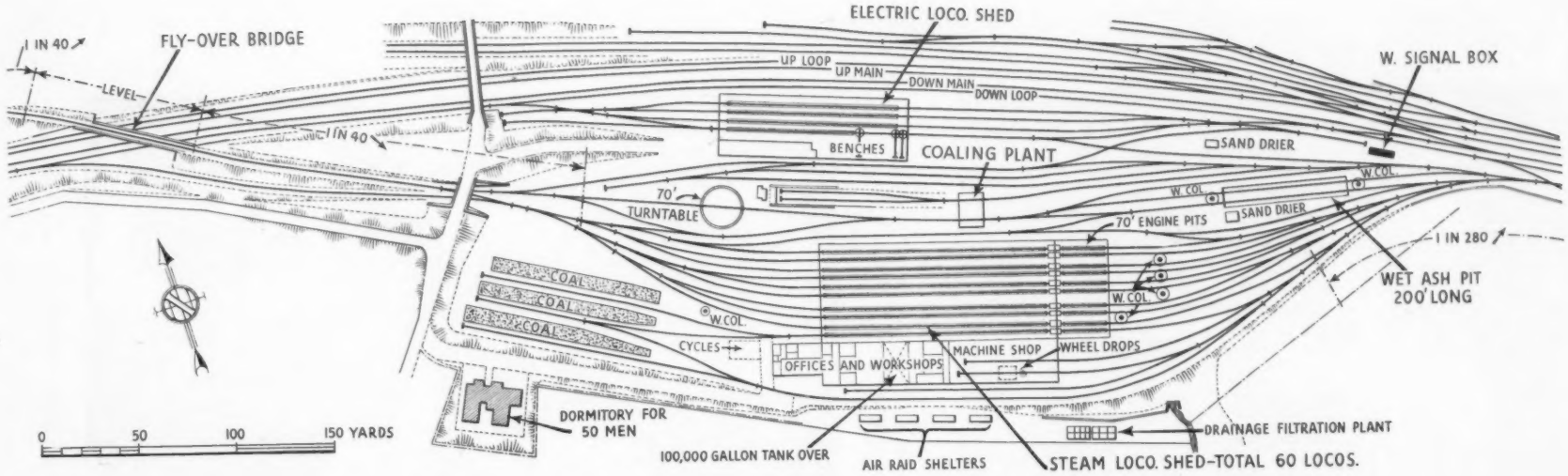
It has been carried out by the Bates & Rogers Construction Corporation, of Chicago, under the general supervision of Mr. I. L. Pyle, Chief Engineer of the railway, assisted by Mr. E. G. Rice, District Engineer, and Mr. P. L. Graves, Resident Engineer, according to our American contemporary *Engineering News-Record*, to which we are also indebted for the diagram.

FIFTY MILLION BOOKS COLLECTED.—Mr. C. U. Peat, Joint Parliamentary Secretary to the Ministry of Supply, announced recently that the target set last October of 50,000,000 books for the national book-recovery and salvage campaign had been reached in only eleven months. Arrangements are proceeding for the collection of a further 50,000,000 books. It is estimated that not more than 5,000 book scrutineers examined the 50,000,000 volumes collected as to their suitability for the Services, for war-damaged libraries, or for repulping.

The British railways' stand at the National Safety Training Exhibition at Dorland Hall, London, S.W.1, which closed on September 17. The four main-line railways and the L.P.T.B. co-operated in equipping the stand, which was in charge of a member of the Southern Railway staff

The G.W.R. exhibit at Dorland Hall

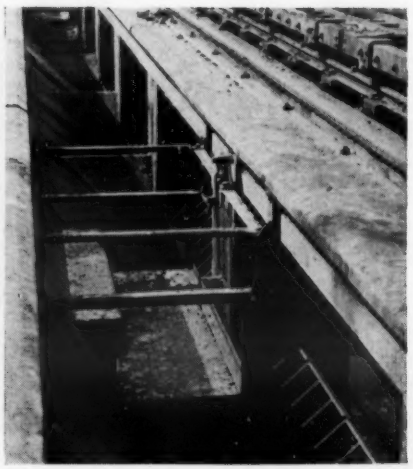
THE BRITISH RAILWAYS AND NATIONAL SAFETY TRAINING



General layout of locomotive shed, its approaches, and ancillary buildings, and installations

Wet ash pit with cover partly open

Cover pushed back to show water in pit



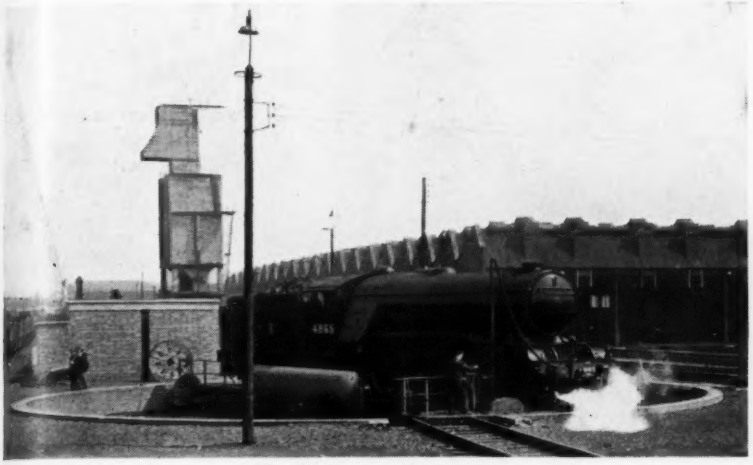
The cleaning trolley and safety guard

L.N.E.R. NEW LOCOMOTIVE DEPOT IN THE NORTH MIDLANDS

(*See article on opposite page*)

L.N.E.R. New Locomotive Depot in the North Midlands

Modern layout and equipment make for expeditious working



The 70-ft. turntable in use

AT midnight on April 10 last an old and out-of-date North Midlands locomotive depot of the L.N.E.R., first brought into use nearly 100 years ago, was closed and the equipment and locomotives, the latter numbering 100, transferred to a new depot 3½ miles away.

The shed at the new depot is double-ended with connections to the L.N.E.R. main line at both ends; one end is served by a flyover for inward engines so as to obviate delays to train movements on the running lines. Sixty locomotives can be accommodated on the ten tracks within the shed, outside which, at the east end, are 70-ft. preparation pits installed on each shed road.

A vacuum-operated articulated 70-ft. turntable has been installed at the west end of the shed and an electrically-operated bunker-type skip-hoist coaling plant of 250 tons capacity, capable of refuelling a locomotive with 8 tons of coal in three minutes, has been provided. Other equipment at the depot includes a high-pressure hot-water boiler washing-out plant, commodious stores containing automatic oil-issuing pumps, and a 40-ft. high water tank holding 100,000 gal.

The provision of a double "wet ash-pit" 200 ft. in length is an interesting feature of the new depot. Ashpits of this type previously installed by the L.N.E.R. at two Southern Area depots in 1930 were of reinforced-concrete construction and consisted of two pits, the outer side of which sloped to an angle of about 45° into a water channel roughly 6 ft. deep and wide enough to take a ½ cu. yd. grab. At 50-ft. intervals in each of these ashpits were platforms (entered by steps and a short tunnel from the outside) to allow standage by the engineman or fire dropper when raking out the ashpan, the ashes from which slid down the slope into the water channel, whilst the fire and clinker from the firebox were thrown direct into the channel, which was protected by movable railings or sliding grids to prevent men falling into the water.

Because of the varying lengths of locomotives, however, it was not possible always to use every platform simultaneously and thus a certain amount of effective length was lost. Therefore in the depot under review the slope is continuous throughout the length of the pits, the fixed platforms are dispensed with, and instead of the pit sloping from approximately rail level, vertical walls are provided with light rails on the inner sides. From these rails are suspended cages constructed of light-steel sections, and which have a flat floor and roller-bearing wheels. The cages are easily moved by hand and the locomotives may accordingly stand buffer-to-buffer the length of the pit; the cages are pushed to the correct position under the ashpans. A grab crane is provided for removing the ashes from the pit which can hold roughly one week's quota of ashes and clinker, although usually it is the practice to employ the grab crane during slack periods.

In a commodious machine and repair shop an electrically-operated wheeldrop and electric hoist are provided. Because of the war it was not possible to instal new machine tools as originally intended, but the machines from the old depot have been transferred and each has been thoroughly overhauled and equipped with independent electric drive. The wheel-drop consists of an 11-ft. section of track which can be lowered to a depth of 10 ft. The table, which travels at a speed of 5 ft. per min. and will lift 20 tons, is actuated by four vertical screws, gear driven by a 25 h.p. 700 r.p.m. motor. When the table reaches the bottom position, sections of the platform on each side slide inwards to complete the track, thus allowing the locomotives to be moved away and the wheels to be returned to the surface for inspection.

A blacksmith's shop with electro-pneumatically-operated power hammer, forges with electrically-driven blowers, and a coppersmith's shop form a further part of the repair equipment.

For the staff of 750, which includes 50 women, commodious messrooms with electric cooking and heating equipment have been provided. An enginemen's dormitory equipped for sleeping 50 men has been provided near the shed, but as it is not being used as such at the present time part of the building has been adapted and equipped as a 24-hr. service canteen to seat 80. Equipment in the canteen kitchen includes a steamer, a 30-gal. vegetable boiler, a two-pan fish fryer, boiling table, griller, two-oven range, hot-closet, a 25-gal. automatic water-boiler, and a refrigerator. Approximately 1,000 main meals a week are served at present, but staff bringing their own meals may use the new mess rooms.

There is also a lecture room for enginemen, a locker room with 500 private lockers, an ambulance room and modern lavatory and washing equipment; the offices are spacious and centrally heated. (*See editorial note, page* 322, *and illustrations, pages* 334, 336, *and* 337).

Flyover bridge over main line

(See article on opposite page)

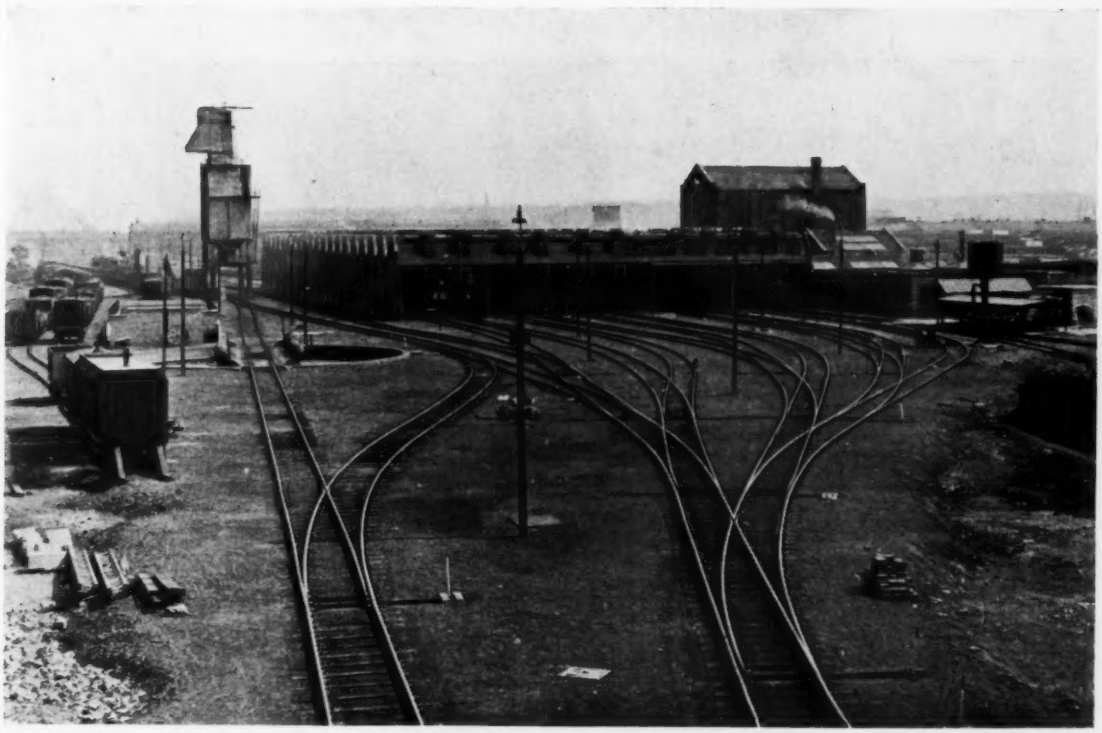
The coaling plant at the depot

Western outlet from the depot, showing flyover bridge

The machine shop at the depot

(See article on page 335)

L.N.E.R. NEW LOCOMOTIVE DEPOT IN THE NORTH MIDLANDS

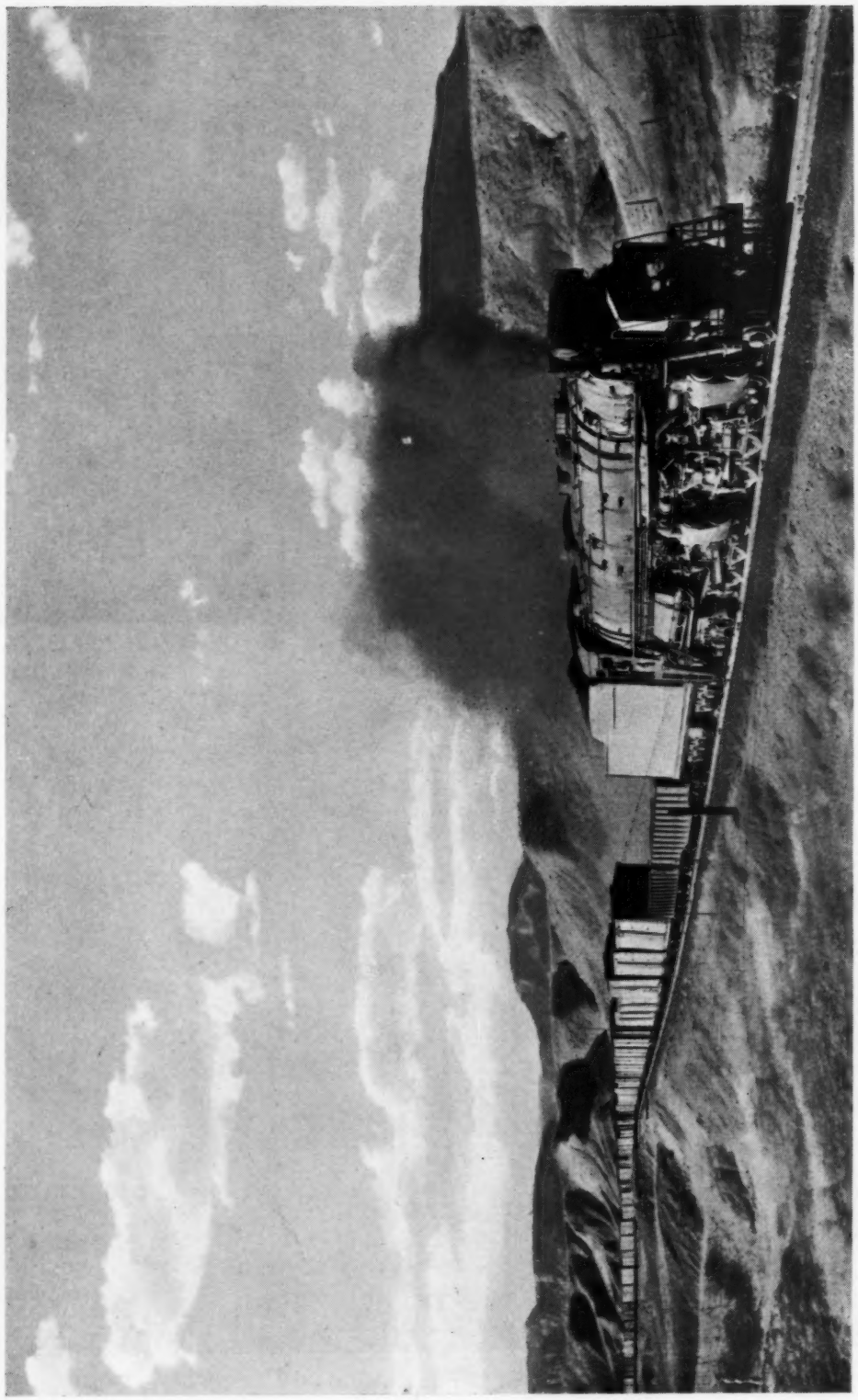


A view looking east of the steam shed and yard

General view of the depot from top of coaling plant

L.N.E.R. NEW LOCOMOTIVE DEPOT IN THE NORTH MIDLANDS

(*See article on page* 335)



[Photo] [R. H. Kindig

Denver & Rio Grande Western Railroad 4-6-6-4 locomotive No. 3703 on 57-wagon freight train at 50 m.p.h. near Thompson, Utah. The locomotive is one of a Baldwin-built series with Walschaerts valve gear in which was included a device for increasing, automatically, the lead as cut-off was shortened, thus reproducing a characteristic of the Stephenson's link motion. The class has 5 ft. 10 in. coupled wheels; four 23 in. × 32 in. cylinders; a boiler pressure of 255 lb. per sq. in. and a total weight, with tender, of 462 tons

RAILWAY NEWS SECTION

PERSONAL

Mr. Vernon Hinde, who retired from the position of London Manager & Secretary of the San Paulo (Brazilian) Railway Co. Ltd. on September 30, has been appointed a member of the board, with effect from October 1. Mr. Douglas Graham Clarke has been appointed Secretary, as from the same date.

The Hon. E. J. Ward, formerly Minister of Labour & National Service, has been appointed Minister of Transport & Minister for External Territories in the new Australian Government.

L.N.E.R. Appointment

The L.N.E.R. announces that Mr. S. J. Judson, Stationmaster, Whitby, has been appointed Assistant to the Mineral Manager, Doncaster.

Colonial Railway Appointment

The Secretary of State for the Colonies has approved the following appointment :—Mr. H. J. M. Welsh, Traffic Inspector, Railway Department, Gold Coast, to be Traffic Officer, Nigerian Railway.

The Rt. Hon. the Lord Southborough, who was appointed a Director of the Westinghouse Brake & Signal Co. Ltd. in 1919, and Chairman in 1931, has retired from that position. Lord Herbert Scott, who was appointed a Director of the company in 1935, has been appointed Chairman.

Mr. A. G. Stewart, who has been with the company since 1924, and has been an Executive Director since 1931, has been appointed a Deputy-Chairman of Stewart and Lloyds Limited, in addition to Sir Nigel Campbell, who was appointed Deputy-Chairman in 1936.

We regret to record the deaths, on September 15, of Mr. H. Powell, Chief Chemist & Metallurgist, and, on September 19, of Mr. J. Hawkins, Chief Accountant, of the Associated Equipment Co. Ltd., after serving the company for 22 and 37 years, respectively.

Institution of Mechanical Engineers

Sir George Nelson, who is Chairman & Managing Director of the English Electric Co. Ltd., has been appointed a Member of Council of the Institution.

Mr. Edmund Bruce Ball, who is Managing Director of Glenfield & Kennedy Limited, has been appointed an Honorary Life Member of the Institution.

We regret to record the death, at the age of 75, of Dr. J. J. C. Bradfield, C.M.G., D.Sc., M.Inst.C.E., M.I.E. (Australia), a member of Messrs. Dr. J. J. C. Bradfield & Son, consulting engineers, and formerly Chief Engineer, Public Works Department, New South Wales, and Government Engineer, Sydney Harbour Bridge. Dr. Bradfield was responsible also for the design and construction of the City Underground Railway, Sydney. He was educated at Ipswich Grammar School, Queensland, and obtained a Queensland Government scholarship at Sydney University in 1886. He entered the New South Wales Public Works Department in 1891, and resigned from that service in 1933, when he took up private practice. He was Australian representative on the council of the Institution of Civil Engineers from 1936 to 1939.

Mr. Donald MacNaughton MacRae, C.B.E., whose death we recorded last week, had been General Manager of the Central Argentine Railway since 1936. He was President of the Directing Committee of the Railway Clearing House, Buenos Aires. Mr. MacRae received his preliminary training with the former Caledonian Railway, which he joined in 1893. He occupied various positions with that company until 1900, when he was appointed to a position in the Traffic Department of the Algeciras-Bobadilla Railway, Spain ; later he became Assistant Traffic Manager, and in 1903 he

The late Mr. D. M. MacRae

General Manager, Central Argentine Railway, 1936-43

was appointed Traffic Manager. In 1912 Mr. MacRae joined the Central Argentine Railway as Assistant Traffic Manager, and held that position until January, 1915, when he temporarily relinquished it to proceed to England, where he enlisted in the Honourable Artillery Company ; in May of the same year he was gazetted to a commission in the Royal Engineers. In 1917 he was appointed Assistant Director of Transport, and held that position until the end of the war. In 1918 he was promoted Lt.-Colonel, was mentioned in dispatches, and was made O.B.E. He returned to Argentina a year later, and resumed his duties as Assistant Traffic Manager of the Central Argentine Railway. In 1922 he became Assistant to the General Manager and was placed in charge of the then newly-created Labour Department. In 1923 he resigned from the railway service to take over the management of Leach's Argentine Estates in the Province of Jujuy. He was appointed General Manager of the United Railways of Havana in 1926, which position he relinquished in 1929 on being appointed Assistant General Manager of the Buenos Ayres Great Southern Railway. He became General Manager of the Cordoba Central Railway in 1931, and of the Central Argentine Railway in 1936. He was raised to be C.B.E. last June.

The late Lady Passfield (better known as Mrs. Sidney Webb), who was a daughter of the late Mr. Richard Potter, Chairman of the Great Western Railway Company from 1863 to 1865, and a former President of the Grand Trunk Railway of Canada, left £24,147.

Mr. H. B. Robin Rowell, a Director of the company, has been elected Chairman of R. & W. Hawthorn, Leslie & Co. Ltd., in succession to the late Mr. E. C. Straker.

We regret to record the death, in his 65th year, of Mr. P. D. Sutherland, Director of the Secretariat Department of the British Ministry of War Transport at Montreal. Before joining the Ministry in 1939, Mr. Sutherland was General Passenger Agent (Cruises), Canadian Pacific Railway.

Sir Thomas A. L. Brocklebank, who is a Director of the London Midland & Scottish Railway Company, has resigned his Directorship of the Thames & Mersey Marine Insurance Co. Ltd.

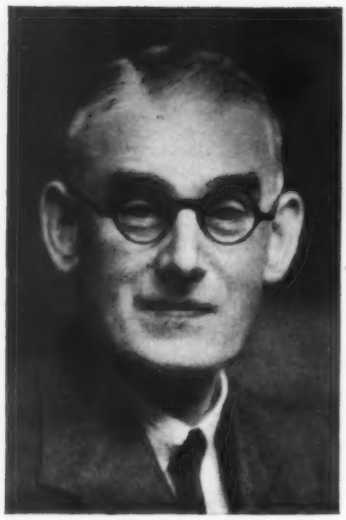
Mr. S. A. Heaps, F.R.I.B.A., Architect to the London Passenger Transport Board, retired on September 25, after 40 years' service with the board and the Underground Electric Railways Co. of London Ltd.

Mr. B. Adkinson, District Locomotive Superintendent, Norwich, L.N.E.R., who, as recorded in our August 13 issue, has been appointed District Locomotive Superintendent, Gorton, joined the Great Northern Railway in 1910 as an apprentice, and later worked as a journeyman in the running sheds at Colwick until 1918. He then was Leading Fitter at Lincoln until March, 1919, after which he was made Mechanical Chargeman at Ingrow. In 1920 he became Running Foreman at Leeds, and in 1922 Workshop Foreman at Ardsley. From 1924 to 1928 he was Running Shed Foreman at Hatfield ; in the latter year he became Locomotive Depot Superintendent at Hitchin, and in 1931 he took up a similar position at Hornsey. In October, 1937, he was appointed Assistant District Locomotive Superintendent, Kings Cross, and in February, 1942, he was made District Locomotive Superintendent, Norwich.

Institute of Transport

Among those elected recently to membership of the Institute of Transport are Mr. O. H. Corble, Assistant General Manager (Ancillary Services), L.N.E.R.; Mr. J. E. Richardson, District Passenger Manager, York, L.N.E.R.; and Mr. R. B. Temple, District Goods Manager, Leeds, L.N.E.R. Those elected to associate membership include Mr. L. Bicheno, Divisional Rolling Stock Engineer, L.P.T.B.; Mr. R. J. Ellery, Secretary, B.E.T. Federation Limited; Mr. C. Richardson, Assistant Labour Superintendent, Birmingham & Midland Motor Omnibus Co. Ltd.; Mr. F. W. Sellwood, Chief Traffic Officer, East Kent Road Car Co. Ltd.; and Mr. W. Strachan, Assistant to Cartage Manager, Scottish Area, L.N.E.R.

Mr. Herbert Evans, Chief Trains Inspector, District Superintendent's Office, Dublin, Great Northern Railway (Ireland), who, as recorded in our July 23 issue, has been appointed Assistant to the Traffic Manager (Operating), entered the company's service in 1905. After serving at various stations and gaining experience in all branches of station working, he was appointed to the

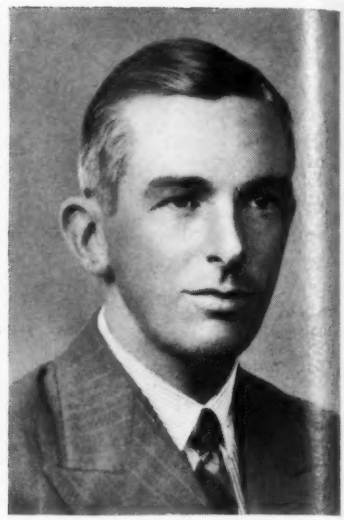


Mr. Herbert Evans

Appointed Assistant to Traffic Manager (Operating), G.N.R. (I.)

Mr. J. F. Atkinson

Appointed Assistant to Traffic Manager (Commercial Indoor), G.N.R. (I.)



Mr. A. M. Beaton

Appointed Assistant to Traffic Manager (Commercial Outdoor), G.N.R. (I.)

Goods Manager's Office, Belfast, in 1912. In 1920 he took up duty at the company's headquarters in Dublin as Assistant Staff Clerk, and became Chief Staff Clerk in 1929. Four years later he was made Chief Clerk in the District Superintendent's Office, Dublin, and in 1941 he was promoted to be Chief Trains Inspector.

Mr. Franklin Leigh, District Manager, Lincoln, L.N.E.R., who is retiring on October 3, started his career in 1893 as a booking clerk at Bollington. After experience in various departments, he was appointed, in 1909, Pier Manager at Cleethorpes, and three years later was made also Stationmaster there. In 1924 he went to Leicester (Central) as Stationmaster, and six years later was appointed Stationmaster, Kings Cross. In 1932 Mr. Leigh became District Manager, Lincoln.

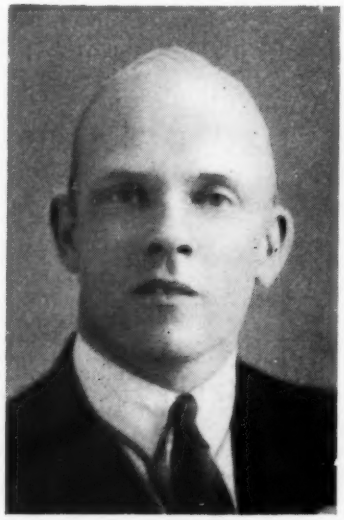
Mr. J. F. Atkinson, Chief Clerk, Traffic Manager's Department, Great Northern Railway (Ireland), who, as recorded in our July 23 issue, has been appointed Assistant to the Traffic Manager (Commercial Indoor), was born in 1898 and entered the company's service in 1915. After serving in various departments at Belfast and Dublin, he was appointed to the Goods Manager's Office at Belfast in 1924. In 1933 he was made Personal Assistant to the Traffic Manager, and in 1941 was appointed Chief Clerk, Traffic Manager's Department.

Mr. A. J. Johnson, Assistant District Superintendent, York, L.N.E.R., who, as recorded in our September 17 issue, has been appointed Acting District Superintendent, Sunderland, was educated at St. Catharine's College, Cambridge, and entered the company's service as a traffic apprentice in 1928. Three years later he became engaged on statistical work in the Chief General Manager's Office, and in 1933 was made Assistant Yardmaster, Hull West. In the next year he returned to the Chief General Manager's Office, and was engaged on shipping work. In 1935 he was appointed Chief Clerk in the District Superintendent's Office, Newcastle, and a year later became Assistant District Superintendent, Sunderland. In 1939 he was made Goods Agent, and, in April, 1942, Yardmaster, at Hull. In December last Mr. Johnson became Assistant District Superintendent, York.

Mr. A. M. Beaton, who, as recorded in our July 23 issue, has been appointed Assistant to the Traffic Manager (Commercial Outdoor), Great Northern Railway (Ireland), was born in 1907. He entered the company's service in 1924, and served at various stations. On the formation of the company's Road Motor Department in 1930, he was appointed to the Road Motor Superintendent's Office, Dublin, and was transferred with that office to Belfast in 1932. In the next year he was transferred to the Accountant's personal staff at

Mr. Franklin Leigh

District Manager, Lincoln, L.N.E.R., 1932-43



Mr. A. J. Johnson

Appointed Acting District Superintendent, Sunderland, L.N.E.R.

The late Mr. J. A. Jenkinson

Liaison Officer, L.N.E.R., Port of Birkenhead, 1942-43

Dublin, where he remained until 1941. In the latter year he went to the General Manager's Office, where he was employed on reorganisation work, with particular reference to the Traffic Department.

We regret to record the death on September 1 of Mr. J. A. Jenkinson, Liaison Officer, L.N.E.R., Port of Birkenhead. Mr. Jenkinson joined the former Great Central Railway at Nottingham in 1899. He went to the Chief Goods Manager's Office, London, in 1905, and in 1909 started a course of training as a result of having passed a higher-grade examination. He was afterwards appointed Assistant District Superintendent & Goods Manager at Nottingham. In 1914 he joined the Army and was responsible for a period for the railway work of the docks at Dunkirk. On his return to the G.C.R., he was transferred to Grimsby Docks as Assistant District Superintendent & Goods Manager, and was given charge also of railway operation at Immingham. He was transferred to Manchester in 1925, where he was appointed District Superintendent in 1928. In June of last year he became Liaison Officer for the Port of Birkenhead.

Among those who attended the funeral of Mr. Jenkinson at Liverpool on September 6 were Lt.-Colonels Bustard and Biddell and Captain Armstrong (representing Movement Control, Birkenhead); Mr. R. J. Hodges, Secretary & General Manager, Mersey Docks & Harbour Board; Mr. G. Leedam, Secretary & Manager, Cheshire Lines Committee, Liverpool; Mr. A. R. Dunbar, District Superintendent, L.N.E.R., Godley (also representing Mr. V. M. Barrington-Ward, Assistant General Manager, Operating, L.N.E.R., and Mr. E. W. Rostern, Superintendent, Southern Area, L.N.E.R.); Mr. C. F. Desborough (representing Mr. G. A. Musgrave, Locomotive Running Superintendent, Western Section, Southern Area, L.N.E.R.); Mr. F. R. Hauxwell, District Goods Manager, L.M.S.R., Liverpool; Mr. Turner (representing Mr. A. E. le Cheminant, District Goods Manager, G.W.R., Liverpool); Mr. H. S. Owen, District Goods Manager, L.N.E.R., Manchester; Mr. E. G. Garstang, District Goods Manager, L.M.S.R., Manchester; Mr. Hunter (representing Mr. S. E. Parkhouse, Divisional Superintendent of Operation, L.M.S.R., Crewe); Mr. Briant (representing Mr. H. H. Swift, Divisional Superintendent, G.W.R., Chester); Mr. A. S. Mead (representing Mr. F. W. Wheddon, District Passenger Manager, L.N.E.R., Manchester); Mr. J. Hodgson, District Estate Agent, L.N.E.R., Manchester); and Mr. W. Brown (representing Advertising Manager, L.N.E.R., Manchester).

Indian Railway Staff Changes

Mr. W. A. Anderson, Divisional Superintendent, Rawalpindi, N.W.R., has been appointed to officiate as Chief Engineer of that system, in place of Mr. A. M. Sims, C.I.E., granted leave as from June 11.

Mr. G. C. Assheton Smith, Officiating Deputy General Manager (Recruiting), N.W.R., has been appointed Officiating Divisional Superintendent, Rawalpindi.

Khan Bahadur A. L. Sheik has been appointed to officiate as Deputy General Manager (Recruiting), N.W.R., in place of Mr. Assheton Smith.

Mr. P. C. Khanna has been appointed to officiate as Deputy Chief Engineer (N.), N.W.R., in place of Mr. P. W. Wilton Davies, granted four months' leave as from May 25.

Mr. T. M. Robinson has been appointed Officiating Deputy Chief Mechanical Engineer, N.W.R.

Mr. W. Puttick, Officiating Chief Electrical Engineer, N.W.R., has been granted leave as from June 7.

Mr. H. B. Adams has been appointed to officiate as Chief Electrical Engineer in place of Mr. Puttick.

Mr. C. St.D. Jordan, M.B.E., Sales Manager, N.W.R., has been granted six months' leave preparatory to retirement, as from May 1.

Mr. W. T. Biscoe, V.D., Divisional Superintendent, Lahore, N.W.R., whom some of our readers will know as representative for some years of the Indian railways in New York, has been appointed Regional Controller of Priorities, War Transport Department.

Mr. T. G. R. Eagan, Divisional Superintendent, Ferozepur, N.W.R., has been appointed to succeed Mr. W. T. Biscoe at Lahore.

Mr. A. G. Hall, M.B.E., has been appointed officiating Divisional Superintendent, Ferozepur, N.W.R., in place of Mr. T. G. R. Eagan.

Mr. C. St.D. Jordan, M.B.E., Sales Manager, North Western Railway, India, who, as recorded above, has been granted leave preparatory to retirement on November 1 next, was born in 1886, and joined the N.W.R. in 1913. He was promoted to be Assistant Traffic Superintendent in 1920, and two years later was transferred from the N.W.R. to the Cawnpore-Ajmer—Agra-Bah Railway Survey as Traffic Officer. He returned to the N.W.R. in 1922, but from 1924 to 1926 was again on special duty, as Traffic Officer on the Oudh & Rohilkhand Railway. Mr. Jordan made a special study of traffic reconnaissance and survey work, and between 1926 and 1930 was responsible for a large proportion of the 3,000 miles of N.W.R. line surveyed during that period. When, in 1934, the Sales Branch of the Chief Commercial Manager's Department was formed, Mr. Jordan was appointed the first Sales Manager. He was closely connected with the N.W.R. road-transport concern, the first undertaking of its kind embarked on by a State railway in India. He was made M.B.E. in the King's Birthday Honours List of 1941. Since 1934 Mr. Jordan has been in charge of the business side of the publication of the *N.W.R. Magazine*, as Assistant Manager.

Mr. W. T. James has been appointed a Director of the Northern General Transport Co. Ltd. He also has been elected to the board of East Midland Motor Services Limited, and has been appointed Managing Director. Both companies are associates of the British Electric Traction Co. Ltd.

Major Richard M. L. Lemon, Royal Engineers, elder son of Sir Ernest Lemon, who retired recently from the position of Vice-President (Operating & Commercial), L.M.S.R., is attached to the staff of the Indian Army as Deputy Assistant Director of Transportation, and is at present on loan to the Indian Railway Board as a Planning Officer. Major Lemon is in the service of the G.W.R.

Mr. J. G. Grandon has resigned from the post of Publicity Officer, Crosville Motor Services Limited. He was formerly in the Publicity Department of the Great Western Railway.

A gantry crane about to lift one of the coaches of the Congressional, of the Pennsylvania Railroad, after the derailment which occurred recently during the run between Washington and New York

TRANSPORT SERVICES AND THE WAR—209

G.W.R. Winter Train Services

In the winter timetables of the Great Western Railway, which operate from October 4, the principal changes affect the services between Paddington and South Wales, some of which are decelerated considerably. The 11.55 a.m. from Paddington is slowed by 15 min. to Cardiff, 24 min. to Swansea, and 25 min. to Carmarthen and beyond; the 1.55 p.m., by 10 min. to Swansea, and 20 min. to Carmarthen and beyond; and the 5.55 p.m., by 8 min. to Cardiff, and 9 min. to Carmarthen; only the 8.55 a.m. down runs to unaltered timings. In the up direction the 8.15 a.m. from Cardiff to Paddington is not slowed, but the 10.15 a.m. (7.30 from Carmarthen) reaches London at 1.40 p.m. instead of 1.25 p.m.; and the 12.30 p.m. (8.15 a.m. from Neyland) at 4.5 p.m. instead of 3.55 p.m.—3.45 p.m. earlier during the war—but the 4.20 p.m. from Cardiff is not altered. Elsewhere there are no changes of note, other than the customary withdrawal of the special holiday duplicate-services run each summer on Saturdays to and from the coastal resorts.

L.M.S.R. Winter Train Services

There are several changes of note in the L.M.S.R. winter timetables, which come into operation on October 4. The 9.45 a.m. from Manchester (London Road) to Euston is worked daily in two portions, at 9.45 a.m. for Stockport and Euston only, running the 183 miles from Stockport non-stop *via* Crewe, and at 9.52 a.m. for Stockport, Macclesfield, Stoke-on-Trent, Watford and Euston; the former arrives at 1.50 p.m. (an acceleration of 15 min.) and the latter, which carries the restaurant car and the through Colne portion, at 2.10 p.m. The 10 a.m. from Blackpool to Euston ceases to call at Bletchley, and arrives at 3.54 p.m., 8 min. earlier. Among the week-end services now advertised are one on Fridays and Saturdays from Wolverhampton at 12 noon and Birmingham at 1.20 p.m. to Watford and Euston (due 4.3 p.m.). In the down direction the 10.40 a.m. to Blackpool leaves Euston at 10.45 a.m., but runs to unchanged timings north of Crewe. On Saturday nights the Perth portion, with sleeping cars (run hitherto on the 10.55 p.m. Preston train), is run as an independent express at 10.30 p.m., calling at Crewe and principal stations thereafter; but the Perth arrival is unchanged. The 12.30 p.m. from Liverpool (Exchange) and Manchester (Victoria) to Glasgow on Fridays and Saturdays is withdrawn, but a new service operates on the same days in each week at 1.30 p.m. from Manchester and 1.45 p.m. from Liverpool, calling at principal stations to Carlisle, which is reached at 5.25 p.m. The 8.15 a.m. down Irish Mail from Euston is now advertised to call at Colwyn Bay at 1.27 p.m. to set down. In Scotland, the 11.55 a.m. express from Perth to Blair Atholl, Aviemore, and Inverness is continued daily throughout the winter, followed by the 12.15 p.m. slow, which calls at all stations *via* Forres; similarly the 12.25 p.m. from Inverness to Wick, with restaurant car to Helmsdale, continues to run without advertised stop between Inverness and Tain, relieved of the all stations working by the 10.50 a.m. from Inverness to Helmsdale. Both these represent an improvement on the previous winter's Highland workings. A number of the duplicate services advertised during the summer, in particular those serving holiday resorts in North Wales and on the Lancashire coast, has been withdrawn.

(*See editorial note page* 332)

The Railway Battle of Britain

Mr. C. Grasemann, Public Relations Officer, Southern Railway, in a letter to *The Daily Telegraph*, refers to an article by Air Commodore Howard-Williams in that newspaper in which it was stated that from September 7, 1940, "apart from other damage three of our main-line terminal stations were put out of action. The enemy kept up the assault for three more nights until every railway line from London to the south was *hors de combat*."

Mr. Grasemann points out as a matter of historical record that at no time during the Battle of Britain, or during the night blitzes of the following winter, were all the Southern Railway lines from London to the south out of action. On the contrary, the Southern Railway never failed to keep a varying number of lines open to London, and it is our pride that those which were put out of use were quickly opened.

"The truth is that the Railway Battle of Britain was won as decisively as the air battle. The victors were the railway management who planned the strategy and tactics and the railway officers and personnel who stood up to the blitz with courage and determination equal to those of the armed forces. They were assisted by the fact that the Southern Railway owns six terminal stations in the heart of London which branch out in a number of alternative routes. If, therefore, a line was blocked at one point it was nearly always possible for the traffic to by-pass such points.

"Lastly, and most decidedly, the railway battle was won by the London travelling public, without whose cheerfulness and helpfulness the Southern Railway would never have been able to achieve what is its proudest claim—that on no occasion did it fail to offer some service (admittedly often by a roundabout route) to and from the centre of the battle—London.

"One day, it is hoped, the records of the lines actually blocked during the battle will be made public," concludes Mr. Grasemann

Old and new types of London bus head lamps and masks (see accompanying paragraph)

Heavy Buses Permitted

On May 26 last the Minister of War Transport announced that the six-cylinder A.E.C.-engined Daimler double-deck buses (Type C.W.A.6) did not comply with Regulation 4 of the Public Service Vehicles (Conditions of Fitness) Regulations. He has now said that these buses contravene the provisions of Regulation 6 of the Conditions of Fitness Regulations in that they exceed the permitted maximum laden weight by up to 7 cwt. according to the type of body fitted. Nevertheless, the Minister has requested Regional Transport Commissioners not to withhold public service vehicle permits for these vehicles on account of this excess of weight.

Travel Priority

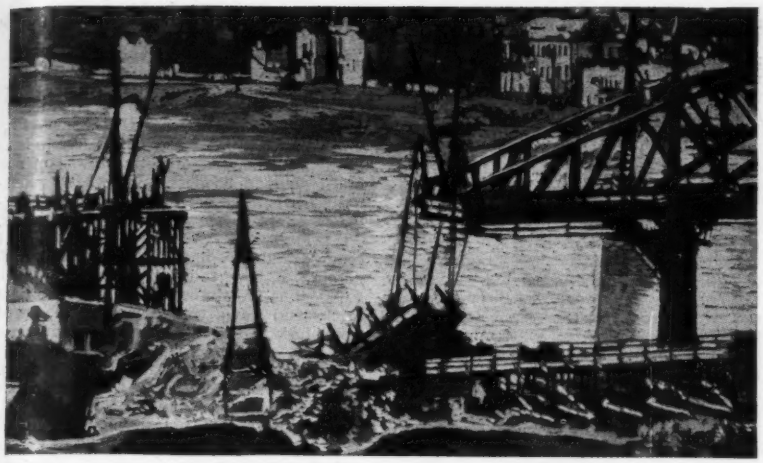
In order to facilitate the enforcement of schemes to give priority of travel in public service vehicles, the Minister of War Transport has given notice of his intention to amend the Public Service Vehicles (Conduct of Drivers, Conductors, & Passengers) Regulations 1936, by adding to Regulation 9 (iv) the words italicised below:—

"9. When a public service vehicle is carrying passengers or waiting to pick up passengers, a passenger or intending passenger shall not (iv) enter or remain in or on the vehicle when requested not to do so by an authorised person on the ground that the vehicle is carrying its complement of passengers, or that the operator is debarred from picking up passengers at the place in question by reason of the conditions attached to his road service licence, *or any permit authorised by or in pursuance of statute in lieu of such licence, or that the operator is required or authorised by such conditions to give preference to passengers of any specified descriptions.*"

Recently, a charge against a passenger for having broken a queue failed on the ground that the bus inspector had called out "workers first"; the passenger in question, although she had no priority pass of any kind, could be described as a "worker." Conductors, inspectors, and queue marshals have now been recommended to use the formula "priority passengers first" when carrying out their duties in connection with a priority scheme authorised by a Regional Transport Commissioner.

Improved Headlamps and Masks

An improved type of combined headlamp and mask is to be fitted to all London Transport buses, lorries, vans, and ambulances. It is expected that all service buses will be equipped before the end of October and that the whole of the change will be substantially completed soon after that date. The masks at present in use were first fitted early in 1940, and replaced the single-slotted type demanded by regulations which came into force at the outbreak of war. Endeavours



German Pioneers rebuilding the destroyed railway bridge over the River Velika at the approach to the Russian town of Pleska
[Reproduced from the Belgrade paper "Novo Vreme"

were continually being made by London Transport to improve the illumination from the masked lamps within the limitations imposed by the Lighting (Restrictions) Order, and certain minor though beneficial modifications had been made. It was appreciated, however, that any marked improvement would necessitate redesigning the mask, and, as the alternative, consideration was given to the adoption of a headlamp and mask designed as a composite unit specially for use under blackout conditions. The unit to be fitted is generally similar to that employed on vehicles in W.D. service, as only slight modifications were necessary to adapt it to London Transport requirements. The intensity of illumination provided by the new headlamp will not differ appreciably from that given by the existing masked lamps, and is within the permitted maximum of 2·5 foot candles at 10 ft. distance. The improvement consists in the wider spread and more penetrating character of the beam, which will be of considerable assistance to drivers. As the combined headlamp and mask is being produced in very large quantities, it was found to be more economical to adopt this unit than to fit existing headlamps with a new design of mask. The existing headlamps and bulbs are to be stored with a view to refitment at the end of the war, and only the masks themselves will become scrap.

New Pacific-Atlantic Highway

The Callao-Huanuco-Pucalpa Highway through Peru, which is said to complete a highway route linking the Pacific with the Atlantic Ocean, was inaugurated by President Prado of Peru on September 7. A 770-yd. steel bridge over the River Aguaytia was opened on the same day, and completed the last link in the highway.

Another Alaska Highway Link

The Province of British Colombia is prepared to build in the immediate future a road to connect the Pacific Highway with the Alaska Highway. If the U.S.A. Army or the Dominion of Canada reject the project, the Provincial authorities will build the link from Fort George (the end of the present Pacific Highway extension into British Colombia) to Watson Lake, which is on the Alaska Highway.

Safety Record Broken

On June 27, a 15-year record for the safe working of explosives over American railways was broken, when two wagons of explosives in transit over the Denver & Rio Grande Western Railroad caught fire at Grand Junction, Colorado, probably as the result of an overheated axlebox. The staff detached the burning vehicles from the train, but damage was caused by exploding shells, fragments of which were hurled as far as a mile from the scene of the fire. It is, perhaps, even more remarkable that this should be the first such casualty since the United States entered the war than that immunity should have been enjoyed over the previous 13 to 14 years of peacetime operation.

Repairing Flood Damage

Much damage was done to railway property in the Mid-West and South-West areas of the United States by the floods in the Mississippi valley, referred to in *The Railway Gazette* of August 6, and the Senate has passed a Bill authorising the Reconstruction Finance Corporation, with the approval of the Interstate Commerce Commission, to lend a sum not exceeding $25,000,000 to the railways which were affected, for rehabilitation work. Expenditure of funds so obtained is to be under the supervision of the Chief of Engineers of the U.S. Army. The original proposal was that the loans should be made free of interest, but this was amended by the House of Representatives, which laid it down that they should bear an interest not exceeding 3 per cent. per annum, with provisions for amortisation over a period of 40 years.

Brisbane Wartime Tramway Traffic

The tramway system of Brisbane carried the record number of 115,706,462 passengers during the twelve months ended June 30, 1942. Compared with the previous year, the net increase in passengers was 14,466,419 or 14·76 per cent. Increased traffic was noted on all lines, and the only decrease recorded in the year occurred in the sale of race tickets, by reason of restrictions on racing imposed by the Australian Commonwealth Government. The total number of passenger cars in service at June 30, 1942, was 398. Brisbane has had a tramway system since August, 1885, when there were 6 miles of track and a small tramcar fleet drawn by horses. Horse cars operated first between the Fiveways (Woolloongabba) and the Valley, but the services were later extended to Breakfast Creek, Exhibition, New Farm, Bulimba, West End and Logan Road. They were very small cars, similar to the centre saloon portion of the first electric type. The first tramway depot was situated at Logan Road, not far from Woolloongabba, and is still in existence, but the building is now leased to a firm of machinery merchants. The system was electrified in 1897, when there were 15 miles of track, 33 electric trams, and 24 horse cars. The system was gradually expanded by the Brisbane Tramways Company, and was taken over by the Brisbane Tramways Trust in 1923. At that time there were only 181 cars in service. The system was purchased by the Government by Act of Parliament, and was vested in the Brisbane Tramways Trust, a body elected by Councils served by the tramways, with two Government representatives as Chairman and Deputy Chairman respectively. On December 1, 1925, the tramway system, with 225 cars, was transferred from the trust to the Brisbane City Council under the Greater Brisbane scheme, and has since been operated as a Department of the Council. The route mileage during this period has grown from 50 to 63.

Wagon Loading in Canada

According to figures issued by the Dominion Bureau of Statistics, the regulations concerning maximum wagon-loading (referred to in *The Railway Gazette* of January 8) have proved highly successful. The number of revenue freight wagons loaded during June was 298,000, the highest for the year, but well below the wartime record of 323,000 wagons loaded last October. On the other hand, the revenue freight tonnage carried in June of this year amounted to 9,036,000 tons (a new high record), compared with 8,749,000 tons in October last (the highest figure for last year), and with 4,277,000 tons for June, 1939. Revenue freight loadings in the first half of this year reached the record level of 46,932,000 tons, compared with 43,740,000 tons in the first half of last year and with 27,796,000 tons in the corresponding period of 1939.

Cable Bridge in Bolivia

To provide cheap and rapid communication across a difficult river, Bolivia has adopted the practice of the U.S. Army engineers and has erected a two-wire cable bridge across the River Espiritu Santo on the route between the cities of Cochabamba, in the highlands, and Todos Santos, 140 miles away in the lowlands, according to a report in the newspaper *Ultima Hora*, of La Paz. The mountain road between these cities is one of the key highways of Bolivia, as it is the shortest route between the railhead at Cochabamba and the head of steamer navigation on the Chapara River, which flows into the Mamore, a tributary of the Amazon, and is the main river route to the rubber region of Bolivia. The road crosses the River Espiritu Santo, an easily forded stream in the dry season, but wide, deep, and impassable during the rains. A highway bridge 1,185 ft. long, and high enough to withstand these floods, would be very costly and take a long time to build, so the American engineers who were consulted suggested an aerial ferry; and that is what has been built by one of the leading American builders of suspension bridges. The bridge consists of a light, 100-ft. steel tower on each side of the river, two steel cables, 1,185 ft. long, and a tramcar or enclosed cage suspended from a carriage on the two-cable track. The car can carry 7 or 8 tons safely, namely, either 80 passengers or a loaded lorry. Only light lorries are used in the area, on account of the unimproved roadbed. The bridge was built in a few weeks and is now carrying traffic.

Value of Technical Press to Engineers

At the opening meeting of the 1943-44 session of the Graduates Section of the Institution of Mechanical Engineers, Mr. J. Foster Petree, M.I.Mech.E., Joint Editor of *Engineering*, delivered an address entitled "The Value of the Technical Press to Engineers." As an introduction to his subject Mr. Petree gave a brief survey of the development of the technical press in this country from its beginning in the early part of the last century to the present day, when there are few branches of industry which are not represented by at least one journal. The line of demarcation between the technical and the trade press is difficult to draw; some journals may fall into both categories. However, a general distinction can be made in that a professionally qualified editorial staff, capable of exercising judgment on the value of technical information, can be considered as essential to the successful functioning of a technical journal.

The capacity to exercise judgment and to take an independent line on questions of technical importance is a vital attribute of any technical journal and this country is fortunate in that its technical press has so developed as to be largely independent of external pressure. To no little degree this is due to the vigorous competition between journals serving the same field, a case in point being the early rivalry between *The Engineer* and *Engineering*—both, it is curious to relate, owing their inception largely to one man. This rivalry, at one time highly acrimonious, resulted in the staffs of both journals being constantly on their toes so that few, if any, events of importance went unrecorded. The standard so set was high.

The railway boom brought in its train a large number of specialist periodicals which have been reviewed in "A Hundred Years of Railway Publishing." *The Railway Gazette* has indeed one of the most complex and interesting of family trees.

The technician may hope to gather information in three ways: from his own experience, from textbooks, and from technical journals. The limitations of the first are obvious, but textbooks as a guide to recent developments, particularly in any section of industry in a phase of rapid growth, have their disadvantages. By the time a textbook has been written and seen through the press it is frequently to a large extent out of date and cannot adequately reflect the latest trends of design. Here the technical press fills an important gap and in fact is an essential guide to current events—and, it may be noted, most textbooks are greatly indebted to the technical press as a source of information. Although the importance of the publications of the many Institutions should by no means be underrated, in this connection, the technical press also performs a useful service in condensing, and perhaps rendering in a more readable form, papers and addresses which might otherwise escape observation. And, let it be recorded, the preparation of such articles is no easy labour; as much effort may have gone into it as into the original paper.

The scope of any journal is a matter of editorial policy and judgment is as diverse as is the number of journals. However, most journals will deal with current news, will provide abstracts from the foreign press, will review books, provide a forum for technical discussion and make editorial comment. The balance between these activities is a matter of individual choice. Not the least valuable of the contributions which the technical press has been able to make is in the review of patent applications. Here selection and appraisal are all important for it will be realised that among the very large number of useless applications filed, there may be one having a profound influence on design for many years.

(*See editorial article page* 325)

Staff and Labour Matters

Bonus for Salaried and Conciliation Staff in Eire

On an application by the National Union of Railwaymen, the Associated Society of Locomotive Engineers & Firemen, and the Railway Clerks' Association, the Minister for Industry & Commerce has issued an Order increasing the bonus paid to the salaried and conciliation employees of the Londonderry & Lough Swilly Railway resident in Eire to 8s. and 4s. a week in the case of adults and juveniles, respectively, to operate as from August 2.

On the application of the Railway Clerks' Association, a similar Order has been issued in favour of the road-transport controllers employed by that company.

Northern Ireland Road Transport Board Staff

An agreement has been concluded between the Northern Ireland Road Transport Board and the Railway Clerks' Association increasing the war bonus paid to the clerical and supervisory staff of the board (to the number of some 700) by 7 per cent. as from August 9, bringing the total bonus paid to 30½ per cent. of the basic salaries.

LOUGH SWILLY CROSSING COLLISION.—A collision between a lorry carrying turf and a goods train took place on September 21 at a crossing on the Londonderry & Lough Swilly Railway near Burnfoot. The driver of the lorry and a labourer employed by the Donegal County Council were seriously injured. Considerable damage was caused to the lorry, which was dragged for some distance along the line.

Reclamation of Materials on the L.M.S.R.

According to the eighth interim report of the Redundant Assets & Engineering Salvage Committees, L.M.S.R., since 1940 no less than 669,962 used chair screws have been used, instead of new screws, on new and reclaimed sleepers. Some 2,600 redundant assets have been authorised for demolition or recovery (including 848 sidings, 30 bridges, 132 weighing machines, 114 cranes, and 554 lamp standards). Altogether, 22,000 tons of iron and steel, 5,600 tons of timber, and 5,000 tons of bricks and slates will have been recovered from these assets, a fair proportion of which is of serviceable quality.

So far as the reclamation, reconditioning, and conversion of scraps and serviceable materials in the Chief Mechanical Engineer's, Chief Civil Engineer's, and Signal & Telegraph workshops is concerned, the report contains the following items of quantities of materials which have been converted or reconditioned for reuse, but which, in peacetime, would have been scrapped :—

Chief Mechanical Engineer's Department

	Tons
Crewe Locomotive	10,452
Derby Locomotive	1,526
Horwich Locomotive	776
Derby Carriage & Wagon	1,097
Wolverton	2,891
Earlestown	1,780
St. Rollox Locomotive, Carriage & Wagon...	1,678
Total	20,200

	Tons
Crewe Signal & Telegraph Engineer's Department	1,729

Chief Civil Engineer's Department

	Numbers
Complete switches reconditioned	200½
Complete crossings reconditioned	581
Obtuse points reconditioned	12
Double slips assembled	8
Crossing Vs reconditioned	332
Crossing wings made	1,888
Switch blades reconditioned	297
Fishplates converted into short lengths ...	99,172
Chair screws reconditioned	25,868
Fishbolts reconditioned	70,038

New Zealand Railways: Results of Working

Brief reference was made in our September 17 issue (page 274) to the outstanding financial results of the operations of the New Zealand Government Railways during the year ended March 31, 1943. Although, in present circumstances, financial results are overshadowed by the vital role being played by the railways in the war effort of the Dominion, the comparative figures included in the annual report are of wide interest as exemplifying the capacity of the railways to handle profitably very substantial traffics.

The following figures are extracted from a statement from the results of working over the past five years, and thus enable trends to be noted in relation to the datum of the last complete pre-war financial year:

NEW ZEALAND GOVERNMENT RAILWAYS

Particulars	Year ended March 31				
	1943	1942	1941	1940	1939
Total miles open for traffic ...	3,460	3,390	3,390	3,390	3,319
Gross earnings	£14,128,993	£11,938,338	£11,160,218	£10,199,070	9,345,387
Working expenses	£11,302,413	£10,056,034	£9,465,574	£9,010,039	£8,644,324
Net earnings	£2,826,580	£1,882,304	£1,694,644	£1,189,031	£701,063
Percentage of total working-expenses to gross earnings ...	79·99	84·23	84·82	88·34	92·50
Railway operating earnings ...	£12,415,080	£10,383,880	£9,694,190	£8,761,637	£8,005,059
Railway operating expenses ...	£10,019,659	£8,902,592	£8,406,790	£7,943,120	£7,663,632
Net railway operating earnings	£2,395,421	£1,481,288	£1,287,400	£818,517	£341,427
Percentage of railway operating expenses to earnings ...	80·74	85·73	86·72	90·66	95·73
Passengers, ordinary	17,171,214	11,105,627	9,440,087	8,283,067	7,813,436
Season tickets	1,377,825	1,167,115	1,055,742	972,769	888,844
Total passenger journeys ...	36,133,268	28,610,945	26,276,923	24,454,014	23,265,768
Goods tonnage	8,035,046	7,734,650	7,754,768	7,077,298	6,917,257
Livestock tonnage	852,043	739,115	671,414	596,652	621,755
Train-mileage (revenue) ...	15,139,882	13,978,961	13,559,646	13,366,798	13,072,615
Engine-mileage	20,736,574	19,147,871	18,625,115	18,199,622	17,817,799

Questions in Parliament

Duration of Railways Agreement

Sir Waldron Smithers (Chislehurst—C.) on September 21 asked the Parliamentary Secretary to the Ministry of War Transport, whether the Government's agreement with the railways stood until we were no longer at war with anybody, or whether it stood for a year only after we had beaten Germany.

Mr. P. J. Noel-Baker (Joint Parliamentary Secretary, Ministry of War Transport) stated in a written answer: The agreement provides that control will be continued for a minimum period of one year after the cessation of hostilities, and it would be premature at this stage to seek to determine its exact duration.

(*See editorial note, page* 321)

Southend-on-Sea Train Services

Lt.-Commander Gurney Braithwaite (Holderness—C.) on September 21 asked the Parliamentary Secretary to the Ministry of War Transport, how many special or relief passenger trains were run by the London & North Eastern Railway from Liverpool Street to Southend-on-Sea and *vice versa* during the month of August with the approximate tonnage of coal consumed thereby.

Mr. Noel-Baker in a written answer stated: When the London & North Eastern Railway Company prepared its timetables for the summer of 1943, Southend was banned to visitors. In consequence, the company scheduled only a skeleton service of trains. On April 1, however, the ban was raised. Thereupon, the railway company put on two additional trains in each direction on weekdays, and three in each direction on Saturdays and Sundays, between Liverpool Street and Southend. The total number of such trains run in August was 78 in each direction. They consumed about 130 tons of coal.

Service Warrants System

Sir John Meller (Tamworth—C.) on September 22 asked the Parliamentary Secretary to the Ministry of War Transport whether, having 12 months' experience of the combined leave-pass and railway ticket, he would extend to all service and civilian travel on Government account the use of a form of warrant valid as a ticket.

Mr. Noel-Baker stated, in a written answer: The use of Service warrants in place of railway tickets by members of His Majesty's Armed Forces has worked well. In consultation with the Railway Executive Committee and the other Government Departments concerned, I am now actively considering whether it can be further extended. I will inform Sir John Meller when a decision has been made.

Travel Reservations

Sir Reginald Clarry (Newport—C.) on September 22 asked the Parliamentary Secretary to the Ministry of War Transport whether he could give any figures of the demand for reservations made by various Government departments for railway sleeping accommodation on trains in this country and visits to the United States of America; and what steps he took to satisfy himself that these journeys were really necessary.

Mr. Noel-Baker, in a written answer, stated: In the first six months of this year my department reserved just over 78,000 sleeping berths. A small number, less than 10 per cent. of the total, were reserved for Members of Parliament. All the rest were reserved at the request of Government Departments. A Government Department which sponsors an application must satisfy itself that the journey is for urgent business of national importance and that it must necessarily be made at night. Applications for passage by sea must be similarly sponsored by the appropriate Government Department.

Bank Holiday Railway Traffic

Flight-Lieutenant H. V. A. M. Raikes (Essex South-east—C.) on September 22 asked the Parliamentary Secretary to the Ministry of War Transport if he was aware that during August Bank Holiday there was great congestion of passenger travel in many parts of the country; and whether the decision not to run extra trains was one made by the Ministry of War Transport or by the railways.

Mr. Noel-Baker, in a written answer, stated:—The decision to which Flight-Lieutenant Raikes refers was made by the Minister of War Transport.

Accidents to Railway Employees

Mr. W. Dobbie (Rotherham—Lab.) on September 22 asked the Parliamentary Secretary to the Ministry of War Transport, if he would inform the House of the number of accidents to employees of the railway companies of this country for which compensation had been paid, including all grades of those engaged in the manipulation of traffic, repair and construction of vehicles, and maintenance and repair of buildings, for the year ended July 31, 1943, or the period nearest this date; and what percentage were in receipt of compensation for 13 weeks or more.

Mr. Noel-Baker, in a written answer, stated: During the year ended July 31, 1943, there were 35,637 accidents involving injury to employees of the main-line railway companies or the London Passenger Transport Board. In 7·9 per cent. of the cases, compensation was paid for a period of thirteen weeks or more.

Railways' and Workers War Service

Sir Irving Albery (Gravesend—C.) on September 22 asked the Parliamentary Secretary to the Ministry of War Transport, in view of the service rendered by the railway companies and railway workers during the war, if it was the intention of the Government to adopt some method of expressing on behalf of the country, the general appreciation of these services.

Mr. Noel-Baker, in a written answer, stated: The Minister of War Transport and I have on several occasions expressed the gratitude of H.M. Government to the railway managements and the railway workers for the great services they have rendered to the country during the war. I am grateful to Sir Irving Albery for this opportunity of doing so once more.

Poisonous Fumes from Gas Producers

Wing-Commander N. J. Hulbert (Stockport—C.) on September 21 asked the Parliamentary Secretary to the Ministry of War Transport, if he was aware of a number of cases of indisposition of conductresses and other personnel due to poisonous fumes from gas producers towed by buses; to what extent this accounted for reluctance on the part of operators to use these plants; and was he taking any steps to remedy this failing.

Mr. Noel-Baker stated in a written reply: My attention has been called to one case in which two conductresses were apparently affected by carbon monoxide gas from a producer-gas unit attached to a public service vehicle. The cause is being investigated, and the producer-gas unit concerned has been withdrawn from service. I am not aware that danger from carbon monoxide is deterring any operator from using gas producers. The danger is very slight, particularly in the open air, but the attention of all public service vehicle operators has been drawn to the matter to ensure that the necessary precautions are taken by them. The matter is dealt with also in the instruction book which will be distributed with each producer-gas unit allocated to goods vehicle operators.

Construction of Roads

Wing-Commander A. W. H. James (Wellingborough—C.) on September 21 asked the Parliamentary Secretary to the Ministry of War Transport under what provisions county councils and other highway authorities were precluded from constructing new roads without the express authority of Parliament.

Mr. Noel-Baker stated in a written reply: I am grateful to Wing-Commander James for the opportunity of correcting any misapprehension which may have been caused by an answer to a question which I gave to him June 23, last. In making that answer, I had in mind the trunk roads which are scheduled in the Trunk-Roads Act and for which the Minister of War Transport is the responsible authority. This act enables the Minister to supersede parts of such roads by substitution but otherwise the schedule cannot be altered without the authority of Parliament. No new trunk roads, whether they are to be reserved for motor vehicles or not, can therefore be made unless Parliament has first agreed. County councils and other local highway authorities, of course, have power to construct ordinary highways but I am advised that the authority of Parliament would be necessary before they could build roads reserved exclusively to the use of motor vehicles.

Forth Road-Bridge

Mr. G. Mathers (Linlithgow—Lab.) on September 22 asked the Parliamentary Secretary to the Ministry of War Transport what was the present position in respect of the construction of a road-bridge over the Forth, near Queensferry; had the site been officially approved; and was it Government policy to go on with the project whenever conditions made this possible.

Mr. Noel-Baker stated in a written answer: The Minister of War Transport has come to no decision about the construction of a road-bridge across the Forth nor has any site for such a bridge been approved as yet. As Mr. Mathers is aware, authorising legislation would be required.

Manchester Ship Canal Charges

Mr. Alfred Edwards (Middlesbrough East—Lab.) on September 22 asked the Parliamentary Secretary to the Ministry of War Transport what was the purpose of allowing an increase in the charges of the Manchester Ship Canal, in view of the fact that practically the whole amount would be paid directly or indirectly by the Government and in view of the serious effect on the general price structure of such action.

Mr. Noel-Baker stated in a written reply: The recent increase in the charges on the Manchester Ship Canal did not bring the new charges above the statutory maxima allowed by Parliament; it did not, therefore, require the authority of the Minister of War Transport. Indeed, he could have prevented the increase only by making an Order under the Defence Regulations; such an Order could have been made only for the purposes which the regulations prescribe. The canal company submitted to him the statement of its financial position, on which its proposals for increased charges were based. After a careful examination of this statement, the Minister of War Transport decided that he would not be justified in making a restrictive order. He is keeping the matter under review.

Notes and News

Norris Locomotives.—On October 13, a paper entitled "Norris Locomotives in England and Wales" is to be presented to the Newcomen Society by Mr. P. C. Dewhurst.

South African Railways Earnings.—South African Railways earnings from August 8 to September 11 inclusive amounted to £4,222,000, compared with £4,053,296 for the corresponding period of 1942.

Vickers Limited.—The directors give notice that an interim dividend of 4 per cent. (actual), less income tax, on the ordinary stock of the company in respect of the year 1943 will be paid on October 21, 1943.

Danish State Railways.—The official German news agency learns from Copenhagen that the Danish State Railways showed a balance of Kr. 6,300,000 for July against Kr. 3,370,000 for the same month last year.

The Newcomen Society.—The annual general meeting of the Newcomen Society for the Study of the History of Engineering & Technichology is to be held on November 10, at 2.30 p.m. The place of meeting has not yet been announced.

Argentine State Railway Loans Repatriation.—The Argentine Minister of Finance on September 17 announced, according to Reuters, that it is proposed to repatriate National External bonds up to 500,000,000 pesos (over £30,000,000) and convert them into internal issues. Part of the large accumulations of foreign currency will be employed in this connection, which will at the same time help to solve the serious problem of the accumulation of blocked sterling. It is proposed first to repatriate, *inter alia*, the State Railway obligations under Laws 12572 and 12573, namely the £661,100 4 per cent. bonds held by Argentine Transandine Holdings, and the £8,472,900 similar bonds held by Cordoba Central Trust. These bonds were issued in 1939 in consideration of the acquisition of the Argentine Transandine and the Cordoba Central Railway undertakings, respectively.

Buenos Ayres & Pacific Railway Co. Ltd.—Announcement is made of the payment on November 4 next of arrears of interest, less tax, on the 4½ per cent. consolidated debenture stock for the year to July 1, 1939. On June 4 last six months' arrears of interest to July 1, 1938, were paid.

The Distant Indicator under Multiple-Aspect Signalling.—We regret that in the article on this subject in our last week's issue the caption to Fig. 3, page 306, was made to read: "Typical contour light equivalent for junction semaphore signals." It should have read: "Typical colour-light, etc."

Agreed Charges.—Applications to the number of 376 for the approval of agreed charges under the provisions of Section 37 of the Road & Rail Traffic Act, 1933, have been lodged with the Railway Rates Tribunal. Notice of objection to any of these applications must be filed on or before October 15 with the Registrar of the Tribunal at Wellington House, 125-130, Strand, London.

Railways' Fuel-Economy Drive.—A conference of 200 delegates, representing the principal using departments of the British railways, was held at Euston on September 29, under the chairmanship of Sir James Milne, General Manager, Great Western Railway, to inaugurate a renewed drive for fuel economy by the railways, and to review the methods by which considerable savings already have been effected. The conference was addressed by Major G. Lloyd George, Minister of Fuel & Power, and Mr. M. G. Bennett, Chairman of the Railways' Fuel Economy Committee. Representatives of the ministries and of trade unions attended. There are to be similar conferences throughout the country, stressing the vital need for the strictest economy in the use of fuel during the winter months.

Institute of Transport.—Sir William Wood will deliver his presidential address to the Institute of Transport on October 12, at 5 p.m. The meeting will take place at the Institution of Electrical Engineers. Forthcoming functions include also an address by the President to the Metropolitan Graduate & Student Society on October 23, at 2.15 p.m., at the Institution of Electrical Engineers; a lunch at the Connaught Rooms, Great Queen Street, W.C.2, after which an address will be given by Mr. P. J. Noel-Baker, M.P., Joint Parliamentary Secretary, Ministry of War Transport, on November 12, at 12.45 p.m. for 1.15 p.m.; and an informal meeting, at which Mr. R. O. Squarey will speak on "Post-War Inland Freight Transport," on November 23, at 1.15 p.m., at the Institution of Electrical Engineers.

Institution of Mechanical Engineers Programme.—The programme of the Institution of Mechanical Engineers for the first half of the coming session includes the presidential address by Professor F. C. Lea, O.B.E., D.Sc., Wh.Sc. (October 22); a joint meeting with the Institution of Electrical Engineers, at the latter Institution, Savoy Hill, W.C.2, at 5.30 p.m., to hear papers on "Bonded Deposits on Economiser Heating Surfaces," by Mr. J. R. Rylands and Mr. J. R. Jenkinson (November 4); a symposium of papers: "Reclamation of Worn Parts by the Metal Spraying Process," by Mr. W. E. Ballard; "Building-up and Hard-Surfacing by Welding," by Mr. W. Andrews, B.Met.; and "The Repair of Worn or Overmachined Parts by Electro-Deposition," by Mr. A. W. Hothersall, M.Sc. (November 12); the Thomas Hawksley Lecture: "Gyroscopic Principles and Applications," by Professor C. E. Inglis, O.B.E., M.A., LL.D., F.R.S. (November 19); a symposium: "Application of Statistical Methods to the Control of Industrial Costs," by Mr. N. R. Neal; "Inspection Efficiency," by Mr. J. C. Edwards, B.A., and Mr. W. A. Bennett; and "Sampling Schemes for Accept-Reject Inspection," by Mr. A. W. Swan, B.A.Sc. (December 17); the Thomas Lowe Gray Lecture: "Fundamentals of the Marine

British and Irish Railway Stocks and Shares

Stocks	Highest 1942	Lowest 1942	Prices Sep. 24, 1943	Prices Rise/Fall
G.W.R.				
Cons. Ord.	58	39	56½	– 1½
5% Con. Pref. ...	115½	105½	109	—
5% Red. Pref. (1950)	109½	103½	107	—
5% Rt. Charge ...	133½	123½	125½	—
5% Cons. Guar. ...	130½	121½	122½	—
4% Deb.	117	105	108½	—
4½% Deb.	118	108	110½	—
4½% Deb.	125	113	117½	– 1
5% Deb.	137	127	123	– 1
2½% Deb.	77	70	75	—
L.M.S.R.				
Ord.	28½	16⅝	31½	– ½
4% Pref. (1923) ...	63½	50½	59½	—
4% Pref.	76½	67½	74	—
5% Red. Pref. (1955)	103¼	94⅜	103½	—
4% Guar.	104½	97½	99½	—
4% Deb.	108⅜	101½	104	—
5% Red. Deb. (1952)	111	107½	109½	—
L.N.E.R.				
5% Pref. Ord. ...	9¾	2⅞	9¼	—
Def. Ord.	5	1⅜	4⅜	+ ⅛
4% First Pref. ...	62	49½	59½	—
4% Second Pref. ...	32½	18½	31½	– ½
5% Red. Pref. (1955)	95½	79	98½	—
4% First Guar. ...	98	88	95	—
4% Second Guar. ...	90	78	86½	– ½
3% Deb.	85	76	80	—
4% Deb.	106⅜	100½	102½	—
5% Red. Deb. (1947)	106	103	104	—
4½% Sinking Fund Red. Deb. ...	106	102½	105½	—
SOUTHERN				
Pref. Ord.	77	61½	73½	—
Def. Ord.	23½	14⅝	24	– ⅛
5% Pref.	112½	104	10.½	—
5% Red. Pref. (1964)	110⅜	105½	111½	—
5% Guar. Pref. ...	131	121½	123½	—
5% Red. Guar. Pref. (1957)	115½	109½	111½	—
4% Deb.	116	104½	107	—
5% Deb.	134	125½	12.½	– 1
4% Red Deb. (1962–67)	110⅜	106	107½	—
4% Red. Deb. (1970–80)	111	106½	107½	—
FORTH BRIDGE				
4% Deb.	109⅞	108	106	—
% Guar.	105½	100	10.½	– 1
L.P.T.B.				
4½% "A"	122½	111	11.½	– 1
5% "A"	131½	122	124½	—
3% Guar. (1967–72)	95⅜	97⅞	98	—
5% "B"	121	111½	115½	—
"C"	56½	38	69	+ 4
MERSEY				
Ord.	27½	20½	31	—
3% Perp. Pref. ...	61½	56½	61	—
4% Perp. Deb. ...	102½	99½	103	—
3% Perp. Deb. ...	80½	76	78	—
IRELAND				
BELFAST & C.D.				
Ord.	9	4	6	—
G. NORTHERN				
Ord.	29¾	12½	1.½	+ 1
G. SOUTHERN				
Ord.	25	10	13	+ 1½
Pref.	29	12½	22	+ 1
Guar.	53	35½	43½	+ 3½
Deb.	71½	55½	65½	+ ½

§ ex-dividend

Screw Propeller," by Mr. G. S. Baker, O.B.E., D.Sc. (January 21); a paper on "Fencing of Dangerous Parts of Machinery," by Mr. H. A. Hepburn (February 18); and informal meetings on November 26, December 31, January 21, and February 25. It is intended to hold all meetings, except that of November 4, at the Institution at 5.30 p.m.; due notice will be given if it is found necessary to alter this time.

British Aluminium Co. Ltd.—An interim dividend at the rate of 3 per cent., less tax, on the ordinary stock, will be paid on October 1.

New Line in U.S.S.R.—Reuters reports the completion of a railway from Konosha (on the Moscow-Yaroslavl-Archangel line), through Kotlas, to a point in the Pechora coal basin, south of Pechora Bay on the Arctic Ocean.

U.S.A. Railways and Ancillary Services.—It is reported that American railways are starting a campaign for the removal of restrictions which prevent them from broadening their operation of air, road, and waterway services.

Dhond-Baramati Railway Co. Ltd.—The Government of India has decided to terminate its contract with the Dhond-Baramati Railway Co. Ltd. and to purchase the railway on September 30, 1944. Notice has been served on the company.

British Insulated Cables Limited Telegraphic Address.—British Insulated Cables Limited announces that, from today (October 1), inclusive, the telegraphic address of its head office, works, and all branch offices in Great Britain, Northern Ireland, and Eire is "Bicobest."

Air Powers for Clan Line.—Alterations to the memorandum of association of Clan Line Steamers Limited empowering the company *inter alia* to own and operate aircraft have been confirmed by the Court. The changes were approved by stockholders at a meeting held on May 28 last.

Brush Electrical Engineering Co. Ltd. Educational Schemes.—The Brush Electrical Engineering Co. Ltd., of Loughborough, has had under review for some time the education and training of its young employees. After reviewing the Government proposals outlined in the White Paper on post-war educational plans, the board has decided to give immediate effect to the recommendations for continuing education for young persons in industry. A comprehensive programme has been worked out in collaboration with Loughborough College; and, by means of courses in the works, school, and at the college, education at the rate of approximately one day a week is being introduced for all girls and boys below the age of 18. Selected young persons over the age of 18 will be given advanced education.

Brush-Metropolitan-Vickers Co-operation.—The Brush Electrical Engineering Co. Ltd. and Metropolitan-Vickers Electrical Co. Ltd. announce that they have fused their interests in the battery electric-vehicle industry. The former company, which has had extensive experience over the last 60 years in the design and manufacture of bodies for passenger and other vehicles, has been taking a considerable interest in the electric-vehicle industry, and recently produced a two-ton electric truck; it now has extended its interest in the battery-electric field by acquiring the goodwill and business of the Vehicle Department of Metropolitan-Vickers Electrical Co. Ltd. The latter company will continue to manufacture the motors, controllers, and electrical equipment, but the vehicles will be sold as the Brush electric vehicles. The responsibility for servicing existing Metropolitan-Vickers vehicles will fall on the Brush Electrical Engineering Co. Ltd. The latter hopes that the permission of the Ministries of War Transport and Supply may be received to enable a limited number of vehicles to be produced from the existing stock of parts, for the use of private customers.

Argentine Great Western Railway Co. Ltd.—This company is paying on November 4 twelve months' interest, less tax, on the 5 per cent. debenture stock, being in respect of the year to October 1, 1939. The previous payment was for the six months to October 1, 1938, and was made on June 4 last.

Improved Spanish Communications.—In addition to the recent important improvements in the Spanish railway services, of which details have already been published in our columns, the petrol position of that country has improved to a sufficient extent to permit the Spanish National Railways to decide to supplement their train services by the operation of daily long-distance bus services radiating from Madrid and extending to San Sebastian, Santander, and Bilbao.

Civil Aviation in South Africa.—In a recent speech at Durban Mr. F. C. Sturrock, the South African Minister of Transport, said that the Government's post-war policy on the future of civil aviation was being discussed in consultation with Great Britain and other interested countries. "South Africa intends to control its own air space," he said. "In international matters, the Union Government will work with Great Britain and other parts of the Commonwealth so far as is possible."

La Guaira & Caracas Railway Co. Ltd.—Railway receipts in the year 1942 amounted to £70,223 (£59,765), and working expenses were £48,874 (£42,088), leaving net receipts of £21,349, against £17,677. Profit on exchange produced £20,480, compared with £23,901, and total net income amounted to £42,442 (£42,073). After providing £21,656 for interest on the 5 per cent. debenture stock and five year notes and for redemption of debenture stock there is a balance of £20,786, which reduces the debit balance to be carried forward to £38,261. During 1942 four payments of 2½ per cent. were made on account of debenture interest arrears. The amount of goods traffic carried in 1942 was a new record, and there was a large increase in passenger traffic due to temporary restrictions imposed on road traffic.

Institution of Electrical Engineers.—The programme of the Institution of Electrical Engineers for the first half of the 1943-44 session includes among the ordinary meetings: the inaugural address as President by Colonel Sir A. Stanley Angwin, D.S.O., M.C., T.D., B.Sc. (Eng.) (October 7); papers on "Bonded Deposits on Economizer Heating Surfaces," by Mr. J. R. Rylands, M.Sc., and Mr. J. R. Jenkinson, B.Met., and "Causes of High Dew-Point Temperatures in Boiler Flue Gases," by Mr. W. F. Harlow, Wh.Ex. (November 4) (this meeting is to be held jointly with The Institution of Mechanical Engineers); two papers by Mr. D. J. Bolton, M.Sc.: "The Economic Rating of Motors and Transformers" and "The Economic Flux Density in Large Supply Transformers" December 2); the thirty-fifth Kelvin Lecture, by Professor E. C. Stoner, Sc.D., F.R.S. (April 27); and the annual general meeting (May 11). Among the Installations Section meetings will be one on November 11, to hear a paper on "Emergency Lighting Systems and their Applications, with particular reference to Battery Equipments," by Mr. S. H. Chase. The Measurements Section meetings will include a paper entitled "A New Electronic Stabilizer and Regulator for D.C. Voltages," by Mr. A. Glynne, M.A. (January 21). The arrangements of the Transmission Section include two papers: "Maintenance of Distribution Plant and Mains on A.C. Networks," by Mr. F. N. Beaumont, B.Sc.(Eng.), and Mr. F. A. Geary (November 10); and "The Problem of Conductor Sagging on Overhead Transmission Lines," by Mr. C. O. Boyse, B.Sc. (Eng.), and Mr. N. G. Simpson (December 8). The informal meetings include a discussion on "How Far is International Standardisation in the National Interest?" to be opened by the President (October 25).

Imperial Chemical Industries Limited.—The directors are maintaining the interim dividend at 3 per cent. actual on the ordinary stock. The dividend will be payable (less tax at the standard U.K. rate reduced by dominion income-tax relief at 7d. in the £) on December 1.

Braithwaite & Co. (Engineers) Ltd.—Trading profit for the year to March 31, 1943, was £119,983 (£85,306), and other income brought gross revenue up to £129,430 (£98,141). After allowing for interest and depreciation, a sum of £30,000 (nil) is allocated to deferred repairs, and £64,750 (£57,777) is provided for taxation, leaving a net profit of £19,860 (£19,674). Final dividend on the ordinary shares is 3½ per cent., making 6 per cent. for the year, against 5 per cent. for the previous year, and the carry forward is £34,361, compared with £30,956 brought in.

Dorada Railway Co. Ltd.—For the year 1942 gross revenue was £195,324, against £148,918 for 1941, and expenses were £134,665, compared with £121,029, leaving net receipts of £60,659 (£27,889). After adding sundry credits of £17,515 and £2,806 brought forward, and providing £29,555 (£18,021) for loss on exchange, £16,292 (same) for debenture charges, and £1,435 for N.D.C., etc., there is a balance of £33,698 available for dividend. This enables the directors to recommend a dividend of 5 per cent., against 2 per cent. for 1941, and to carry forward £3,481. The improved results are mainly due to regulations relating to road traffic which came into force in March, 1942, and restricted the number of motor lorries permitted. The position in regard to exchange has become rather easier recently and the company has been able to make further remittances on account of accumulated balances in Colombia.

Armstrong Whitworth Securities Limited.—At an extraordinary meeting held in London on September 16, resolutions were passed on a poll after discussion approving the voluntary winding up of this company and the appointment of Mr. James Hawson, C.A., as liquidator. The Chairman, Sir Charles Bruce-Gardner, M.I.Mech.E., had explained at the ordinary general meeting held previously that the company's investment in Sir W. G. Armstrong Whitworth & Co. (Engineers) Ltd. and the Partington Steel & Iron Co. Ltd. had been realised. The new subsidiary, Armstrong Whitworth (Vehicle Service) Limited, had just been incorporated to take over the servicing of road motor vehicles previously carried on by the Engineers Company. Since the sale of the Scotswood works in 1937, the company's efforts had been towards a gradual liquidation of the remaining assets and settling all commitments and liabilities.

Railway Stock Market

The continuance of excellent war news governed sentiment in the stock and share markets, and values in most sections were inclined to improve, although there was only a moderate amount of business. Consideration of the Prime Minister's recent speech has tended to modify optimistic views as to the duration of the war, which were gaining ground in Stock Exchange markets, and was also inclined to draw attention to problems that will have to be met before victory is achieved. There was an upward trend in gilt-edged stocks, which induced a better tendency in other front-rank investment securities; but home railway prior charges did not appear to experience much improvement in demand, despite the fact that yields have an attractive appearance when compared with those on stocks of a similar status. Nevertheless, several of the debentures showed fractional gains, and there was an improved undertone in the preference stocks, particularly the higher-yielding stocks of the L.M.S.R. and L.N.E.R. L.N.E.R. guaranteed stocks still offer attractive yields when judged in relation to their investment merits; they are cumulative as to dividend, a point which might prove of importance if post-war reorganisation of transport were to involve any alteration in the capital structure of the railways. It is not assumed, of course, that any development of this kind will be forthcoming, but because of uncertainty as to the post-war position, the market is continuing to regard uncertainty of the future as a more important factor in influencing the value of home railway junior stocks than the question of the very generous current yields. Nevertheless, at the time of writing, the latter have attracted some improvement in demand, and the small rally in values has so far not been followed by profit-taking, contrary to the usual experience in recent weeks when prices developed a better trend. There is still uncertainty as to the period the existing financial agreement is likely to continue in force. It is scheduled to run until at least one year after the termination of hostilities, and it is not known whether this refers to the defeat of Japan as well as Germany. Nevertheless, it is assumed in some quarters that the agreement in fact may remain in force for some while after the defeat of Germany, possibly until there is a final decision on the organisation of transport after the war. Present indications do not suggest that home railway stocks are likely to show strong appreciation in value for the time being, but sooner or later there may be scope for a good advance, bearing in mind the very generous yields and the reasonable expectation that, in due course, less pessimistic views may gain ground in the market with regard to the post-war outlook of the railways.

After declining at one time to 58¾, Great Western ordinary rallied to 59, which, however, compared with 59½ a week ago. Great Western 5 per cent. preference at 109 was unchanged on balance, as were the 4 per cent. debentures at 108. L.M.S.R. ordinary at 31⅜ regained part of an earlier decline; the senior preference at 73¾ was fractionally lower compared with a week ago, but the 1923 preference was slightly better at 60½. L.N.E.R. 3 per cent. debentures rallied a point to 81, and the 4 per cent. debentures improved to 102½. This railway's first guaranteed stock was unchanged at 95, as was the second guaranteed at 87; the latter rallied following a small decline. L.N.E.R. second preference was 31¾, compared with 31⅞ a week ago; but the first preference at 59½ was unchanged on balance. Among Southern issues, the deferred at 24½ was the same as a week ago, as was the preferred at 75½; the 5 per cent. preference remained at 108. There was again better demand for London Transport "C" stock, which further improved from 69 to 69¾.

Argentine railway securities became less active, sentiment having been influenced by a disposition to await reactions to the Foreign Office announcement on British rights in the Argentine. Whereas following their recent improvement, ordinary and preference stocks of the Argentine railways tended to ease, the debentures remained firm, yields on various of the latter being regarded as attractive. Elsewhere, United of Havana debentures improved. French railway sterling bonds had a steadier appearance. San Paulo ordinary was better. Only small movements were shown in Canadian Pacifics.

Traffic Table and Stock Prices of Overseas and Foreign Railways

	Railways	Miles open	Week ending	Traffic for week: Total this year	Traffic for week: Inc. or dec. compared with 1941/2	No. of Weeks	Aggregate traffics to date: Totals 1942/3	Aggregate traffics to date: Totals 1941/2	Aggregate traffics to date: Increase or decrease	Shares or stock	Prices: Highest 1942	Prices: Lowest 1942	Prices: Sept. 24 1943	Prices: Yield % (see Note)
				£	£		£	£	£					
South & Central America	Antofagasta (Chili) & Bolivia	834	19.9.43	32,190	+ 12,350	37	1,059,860	790,960	+ 268,900	Ord. Stk.	14	7⅜	14½	Nil
	Argentine North Eastern ...	753	18.9.43	13,878	— 690	12	159,204	159,618	— 414	,,	6½‡	3	7	Nil
	Bolivar	174	Aug., 1943	4,508	+ 718	35	41,913	35,191	† 6,722	6 p.c. Deb.	19½	10	20½	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds	20½	9	20	Nil
	Buenos Ayres & Pacific ...	2,807	18.9.43	98,400	+ 5,400	12	952,620	991,680	— 39,060	Ord. Stk.	7⅞	4	7	Nil
	Buenos Ayres Great Southern	5,080	18.9.43	144,300	+ 1,380	12	1,611,540	1,480,320	+ 131,220	Ord. Stk.	12½	7½	15½	Nil
	Buenos Ayres Western ...	1,930	18.9.43	53,100	+ 1,560	12	549,780	571,980	— 22,200	,,	12⅝	6	14½	Nil
	Central Argentine	3,700	18.9.43	139,461	+ 9,618	12	1,471,554	1,440,639	+ 30,915	,,	9½	4 1/16	9½	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	3⅜	2½	4	Nil
	Cent. Uruguay of. M. Video	972	18.9.43	29,656	+ 8,948	12	338,850	234,339	+ 104,511	Ord. Stk.	8	4	6	Nil
	Costa Rica	262	July, 1943	23,251	+ 10,490	4	23,451	12,761	+ 10,490	Stk.	16½	11	14½	Nil
	Dorada	70	July, 1943	26,425	+ 9,165	28	146,917	98,475	+ 48,442	1 Mt. Db.	90½	89	94½	6⅝
	Entre Rios	808	18.9.43	21,168	— 65	12	225,804	207,858	+ 17,946	Ord. Stk.	33	4½	7	Nil
	Great Western of Brazil ...	1,030	18.9.43	16,100	+ 4,830	37	577,100	376,000	+ 201,100	Ord. Sh.	9/-	9/-	33/6	Nil
	International of Cl. Amer. ...	794	June, 1943	$591,995	+ $62,010	24	$3,904,639	$3,689,137	+ $215,502	—	—	—	—	—
	Interoceanic of Mexico ...	—	—	—	—	—	—	—	—	1st Pref.	1½	5/3	1½	Nil
	La Guaira & Caracas... ...	22¾	Aug., 1943	7,285	— 2,540	34	68,425	54,765	+ 13,660	5 p.c. Deb.	11¼	5	86½	Nil
	Leopoldina	1,918	18.9.43	35,561	+ 5,625	37	1,271,902	1,128,040	+ 143,862	Ord. Stk.	6¾	3½	5½	Nil
	Mexican	483	14.9.43	ps. 355,000	+ ps. 114,300	10	ps. 4,346,100	ps. 3,188,100	+ ps. 1,158,000	Ord. Stk.	1	⅛	1½	Nil
	Midland Uruguay	319	July, 1943	15,294	+ 2,680	36	15,294	12,614	+ 2,680	—	—	—	—	—
	Nitrate	382	15.9.43	6,677	— 401	36	108,825	132,196	— 23,371	Ord. Sh.	77/-	3½	78/9	Nil
	Paraguay Central	274	17.9.43	$5,021,000	+ $1,222,000	12	$60,687,000	$43,923,000	+ $16,764,000	Pr. Li. Stk.	53	40	75	8
	Peruvian Corporation ...	1,059	Aug., 1943	106,923	+ 21,118	9	206,941	165,606	+ 41,335	Pref.	19⅞	5⅛	15½	Nil
	Salvador	100	July, 1943	c 108,000	+ c 29,000	1	c 108,000	c 79,000	+ c 29,000	—	—	—	—	—
	San Paulo	153½	12.9.43	46,404	+ 11,375	36	1,556,166	1,347,333	+ 208,833	Ord. Stk.	59	41	58½	3⅞
	Taltal	160	Aug., 1943	6,215	+ 980	39	9,730	11,725	— 1,995	Ord. Sh.	41/-	23/-	26/9	Nil
	United of Havana	1,301	18.9.43	49,644	+ 14,713	12	567,591	451,482	+ 116,109	Ord. Stk.	8½	2½	5½	Nil
	Uruguay Northern	73	July, 1943	1,372	+ 230	4	1,372	1,142	+ 230	—	—	—	—	—
Canada	Canadian Pacific	17,034	21.9.43	1,202,200	+ 148,400	38	41,504,000	36,017,400	+ 5,486,600	Ord. Stk.	16½	9 7/16	16½	Nil
India†	Barsi Light	202	Aug., 1943	15,285	+ 2,003	22	107,055	76,587	+ 30,468	—	—	—	—	—
	Bengal-Nagpur	3,267	July, 1943	955,725	+ 17,325	17	4,184,625	3,553,425	+ 631,200	Ord. Stk.	102½	88	102½	3⅜
	Madras & Southern Mahratta	2,939	20.6.43	277,275	+ 48,250	12	2,247,340	1,768,616	+ 478,724	,,	105½	87	107½	6⅛
	South Indian	2,349	20.5.43	189,379	+ 5,937	6	975,109	890,602	+ 84,507	,,	103½	88⅞	103½	4⅝
Various	Egyptian Delta	—	10.6.43	13,955	+ 52,968	10	98,431	75,685	+ 19,746	Prf. Sh.	5½	1½	2½	Nil
	Manila	—	—	—	—	—	—	—	—	B. Deb.	44	35	40	8½
	Midland of W. Australia ...	277	31.7.1943	34,225	+ 6,356	4	34,225	27,869	+ 6,356	Inc. Deb.	95	90	100	6
	Nigerian	1,900	26.6.43	60,473	— 1,150	11	831,293	693,193	+ 138,100	—	—	—	—	—
	South Africa	13,291	17.7.43	913,075	+ 66,738	15	13,113,446	11,863,678	+ 1,249,768	—	—	—	—	—
	Victoria	4,774	Mar. 1943	1,595,068	+ 255,764	—	—	—	—	—	—	—	—	—

Note. Yields are based on the approximate current prices and are within a fraction of ¼ ‡ Argentine traffics are given in sterling calculated @ 16⅔ pesos to the £
† Receipts are calculated @ 1s 6d. to the rupee § ex dividend